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THE INFLUENCE OF VOCATION UPON TELEGRAPH OPERATORS.

The influence of vocation upon health is an unusually interesting chapter in the history of disease. None are more so than with telegraph operators. According to Mr. Hull, president of the Railway Telegraphers' Union, a surprising mortality exists among them. The average death rate from tuberculosis with the general mass of men is 13.8; among telegraph operators it is 46.6, exceeding by 13.5 the mortality among moulders. Other affections of the respiratory organs stand in this relation: General, 3.5; telegraph operators, 18.4, between fifteen and twenty-five years; 23.1 between twenty-five and thirty-five years, instead of 4.9; and to 12 instead of 5.3. There is no denying the fact that it is a vocation fraught with danger; continuous nerve tension, mental concentration, an exhausting fixity of attention, congesting the operator's brain, engendering lung diseases and heart complications. We have seen more forms of insanity, brain strain, melancholia, paralytic dementia; more varied forms of paralysis, local and general; more severe neurasthenic conditions, among telegraph operators than with all the rest of railway employes combined. This can be shown from the tabulated statements of over 300,000 sick employes. Hence, we view the telegrapher's vocation as the most dangerous in railway service. While they are freed from accident, as in the transportation department, still there is proportionately greater mortality among them. We quote from the *New York Herald* the following:

"Every one knows that the telegraphist reads better with his ears than with his eyes. He carries out an essentially mental operation by using the nerves of hearing. This faculty is consequently highly developed in his case. In the ordinary work of reading twenty words a

minute the telegraph operator must distinguish one hundred and fifty alternate strokes or intervals, and when there is a rush of work this figure can go as high as four hundred and fifty. There is also the work of transforming the sounds into visible symbols, or writing, which implies another mental process. And whereas the normal amount of varied sensory impulses per minute is one hundred and twenty, the telegraphist has to accomplish one hundred and fifty to four hundred and fifty. Without taking extreme cases into consideration, it may be said that the sense of hearing in a telegraph operator is two and a half times more powerful than in an ordinary individual. Again, in telegraphy the continuity of the nervous stimulation, the monotony of sounds, and the fixity of attention are further causes of exhaustion. It is found also that during forced work the telegraphist's breathing is affected, his heart's action precipitated, and his brain congested."

We are firm believers that unsanitary surroundings of the average telegraph operator is responsible for his high mortality in tuberculosis. They are put in little better than pig pens generally, or crowded in narrow, filthy, ill-ventilated spaces. If the good Lord, or good common sense, would make a competent and empowered sanitary inspector, next to faulty water-closets the average office of a railway or other telegraph operator would be condemned. Sanitation, wise sanitation, would make many vocations lose much of their horrors. Millions are wasted annually to let legislators make and unmake laws, millions and millions on politics, and not a cent to save the lives of commerce's keen and intense aiders.

AN INTERESTING REPORT ON ANÆSTHESIA.

We have recently received an interesting report upon this subject from Dr. A. J. Ochsner, of Augustana Hospital, Chicago. The cases presented were operated upon by Dr. Ochsner during the last fourteen months, being the third thousand in a continuous series of observation. The method of administration is careful and praiseworthy. The day before the operation the patient is subjected to a thorough examination, noting the condition of the organs. A warm bath is given to stimulate elimination, the alimentary canal cleared, and the next morning an enema is still further employed. He believes the Esmarch mask is superior to all other means of administration. No drugs are used. The lower jaw is hooked over the upper; no gags are needed. The head at the time of anæsthetizing is placed on a level with the body; the pupillary reflexes are solely used, and believed to be an infallible guide; for a contracted, immovable pupil teaches us we have surgical narcosis. His conclusions concerning the administration and results of chloroform are certainly well timed and sensible, and confirm the following conclusions: Difficulties are rare when chloroform is so administered; a dilated, immovable pupil is the first sign of danger; the Esmarch mask is superior to all others; and that anæsthesia should be more thoroughly taught. For the past two years the editor of this journal has pursued the essential same method as used by Dr. Ochsner, excepting that we have not used anything but chloroform. We are ardent believers in the great force of timely suggestion in the administration of chloroform. The patient has explained to him how the anæsthetic

will act, and when administered suggestion of the Esmarch inhaler, attention to pupil and jaws are imperative. A constant stream of pleasant and placating suggestion is kept up by the anæsthetist until unconsciousness is reached. Thus, in illustration, the anæsthetist says to the patient: "Now, if you take this right, there will be no struggle and before you know you will be asleep." "Do you notice what a sweet taste the chloroform has?" "Now, then, breathe slowly and regularly; if this chokes you, push it (the mask) away." "Do you feel that wavy, tremulous sensation—peculiar, is it not?" "You begin to feel stimulated?" "Why, you take it splendidly; just as easily as anybody I ever saw!" "That's right! You're doing splendidly!" "Well! Well! How nicely you take it! Why, it's like a dream"—and so on. When subconsciousness is reached, the anæsthetist says: "Well, Dr. So-and-So, it couldn't be better! Why, he fell asleep like a babe!" We maintain that every word of the anæsthetist counts.

Suggestion in our hands has been most successful; merciful and placating, it soothes and lulls every suspicion and robs the brain of mental strain. Dr. Ochsner mentions that in the first five hundred cases Squibb's chloroform and ether were used; in the last five hundred, Mallinckrodt's. For the past year, in the St. Louis Hospital, Missouri Pacific Railway, we have used nothing else but Mallinckrodt's, and have been as successful as with Squibb's. This came from the reason that at times Squibb's could not be obtained; but, finding the Mallinckrodt's equally as reliable, we have been relieved of a dread, for we only had faith, at one time, in Squibb's; now we are satisfied that we have equally as reliable an agent in Mallinckrodt's. Both of these products are certainly competent to stand the highest tests for safety and efficiency.

A MEDICAL LIBRARY FOR ST. LOUIS.

Several years ago, in an editorial on "The Needs of Medical St. Louis," the writer called attention to the absence of a medical library in this great city. The agitation begun at that time has at last yielded fruit. As we go to press, work is being done toward the formation of "The St. Louis Medical Library Association," which shall equip and maintain a medical library. It is proposed that any person may become a member. Members shall be designated as life, active, associate, and honorary. Life members shall be persons paying one hundred (or more) dollars; active members shall pay twenty-five dollars, which shall pay the associate fee for one year; associate members shall pay five dollars annually. The management shall be in the hands of a board of trustees, who shall be elected from the life and active members.

Up to date the preliminary steps have been taken chiefly by Doctors Pollock, Outten, Duncan, Ravold, Alt, Lutz, Gregory, Kieffer, and Ball.

TELEPHONES AS GERM CONVEYORS.

Perhaps there is no doubt that the telephones, through their receivers, do contain germs; but to what extent they are competent to produce disease has yet to be determined. The recent outbreak of the grip has accentuated the possibility of this source of infection. Recently Dr. E. John Kauffman, of New York, has said more cases of grip "have been coughed,

spluttered and sneezed into the telephone, to be contracted by the next user of the instrument, than have proceeded from all other sources combined." We believe the grip germ is certainly as abundant in the air as it is around the receiver of a telephone. New ideas always dazzle the observer with their possibilities, and their authors proceed enthusiastically to build an extensive and ponderous causative factor. In this instance Dr. Kauffman seems to think this the *causa sine qua non* of the recent grip epidemic. Still, we believe climatic and other conditions are infinitely more ponderous as a factor than the receivers of telephones. In the St. Louis Hospital, Missouri Pacific Railway, for many days the average daily treatment of grip patients was from 115 to 185, and we personally know that not one in seventy-five of these cases had used the telephone in a year, and a great bulk scarcely ever in their lives. The doctor says: "I visited several of the biggest and finest hotels, and also a number of the public telephone exchanges. I carried with me some wire and clean cotton. I mounted the cotton on a piece of wire and rubbed it around the inside of the mouth-piece of the telephone receiver" * * * * "and the result was that I found a multitude of the grip bacilli" (in the cotton used to scrape the receivers). The doctor continuing said: "There are 45,000 telephones at least in New York, and I figure that there have been from 35,000 to 40,000 cases of grip." It would certainly be a common-sense sanitary measure to wash and clean receivers on telephones, and doubtless many will eagerly do this when the necessity is indicated; but we do not believe that telephone receivers are nearly so infectious as stated.

MILLIONS TO CURE MILLIONS—BUT 'TIS NOT HOMŒOPATHY.

In these days of vigorous progress surprises are constant, new ideas spring up, bringing with them vastness of conception and fields of possibilities which thrill and amuse. When inventors can, by mere description of various devices, well into individuals teeming with a seeming ponderous imagination, it but serves to illustrate that many of the subjects thus considered are in the domain of hitherto unknown phases of progress and thought. Nikola Tesla certainly must be a man of wondrous imagination; his surprises are never petty, but seem as broad and expansive as the full, free face of nature. The inherent boldness of his conceptions at times places him almost in the role of an extreme sensationalist. In a paper recently read in New York City, Nikola Tesla proposed to destroy micro-organisms of all diseases by applying millions of volts of electricity to persons afflicted with multitudinous bacteric forms. In his exhaustive paper read before the Electro-Therapeutic Society he outlined his plan in accomplishing the destruction of the bacilli of consumption, etc. This tremendous current, and seemingly incomprehensible force, Mr. Tesla will send through the body of the afflicted individual in such a manner that the vital organs will be free from harmful effects and the disease-producing germs will be drawn from the system. It is asserted that he proposes to send this current, not through the body, as is the case with persons executed by electricity, but will run it along the surface. It had been supposed that Tesla's feat in generating a current of fifty thousand volts was the limit; but now he proposes in the cure of disease

to use millions of volts, and which he claims in the manner to be applied, not only not to harm the patient, but to remove from the system all the bacilli there and renew the afflicted individual with his wonted healthful store of energy. At this moment there is lack of details as to the manner in which Mr. Tesla proposes to apply static electricity in a curative manner. Mr. Tesla said: "I have no time to go into the matter in detail now beyond telling you that it is my plan to apply several millions of volts of electricity to the surface of the body and draw out the germs. No, death would not follow the use of a current so tremendous. The patient would not be injured, but would receive a new store of energy." The manner of its application remains a secret with Mr. Tesla. Dr. F. S. Kolle, who is in charge of the electro-therapeutic department of the Electrical Engineer Institute, says concerning this subject:

"I do not know how the million-volt current is to be produced in the first place. I know of no apparatus which will produce more than a 50,000 volt current. Tesla has produced that—an oscillatory current of high frequency.

"Any man can take a million volts direct with his body—if it can be produced—and not be injured by it, but benefited instead. The reason that 50,000 volts did not kill Tesla when he took that strength of current is that the cells in his body did not have time to contract in response to it. Much less would have killed him instantly. Much more is all the safer.

"It is just such a case as that of a bullet going through a window pane. At high speed it will cut a clean hole and will not crack the glass. The particles have not time to spread during the period of impact.

"As to the benefit of so great a current, we say it as a proverb that electricity is life, and the scientific meaning of that saying is that it oxidizes the tissue. **S&S TAKE WID**

"I have long held the theory, though I have never made it public before, that the renewal of energy and vitality which follows eating long before the three or four hours necessary for digestion have passed is directly due to the production of electric force generated by the action of the stomach acids on the chemicals in the food.

"The exterior application of an oscillatory current of high frequency would have a similar effect; greater as the current went higher, but whether proportionately greater I cannot say. So, therefore, the use of such a current would restore vitality and be an ally and aid to the food taken into the stomach. It could never take the place of food, of course, for, while it could supply oxygen, it could not give the carbohydrates necessary to existence. Therefore, its use would not diminish the amount of food needed. The person using it, however, would have a greater ability to work and a more brilliant intellectuality.

"Would the million-volt current, if it could be produced, kill the bacilli of disease in the body? I do not know. I do not know whether a 50,000-volt current can do it. I am not aware that any experiments of that kind have been made. But oxidization does kill bacilli of all kinds; and as those currents produce it, there is good reason to believe that part of the claim for this discovery. What has not been heretofore known is how much oxidization of tissue will kill bacilli therein. Perhaps that has now been found out."

MARRIAGE OF OVARITOMIZED PATIENTS.

It has been suggested that marriage of women who have had both ovaries removed is of the nature of a fraud, unless the prospective husband has been informed of the mutilated condition of the woman of his choice; and it has been claimed that the absence of the organs of reproduction would probably be considered just ground for the annulment of such marriage.

This question has recently been judicially considered by the Supreme Court of New York, with a curious result. The court, apparently, dissents from the view that inability to bear children, artificially induced, forms a disability "to enter the married state." This opinion is based on the fact that women who have passed the menopause are equally incapable of procreation, and it has never been claimed that such marriages should be null. The argument is advanced that there is no essential difference between a woman who, through no fault of her own, has lost her ovaries through an operation, and one whose ovaries have become functionally inactive through natural causes; and if one be held incapable of marrying, there is no process of reasoning by which the other can be considered capable. The court expresses the opinion that the possession of the organs necessary to conception cannot, as a matter of law, be held to be essential to entrance to the married state, so long as there is no impediment to the indulgence of the passions incidental to that state. Unfortunately, this judgment leaves the crucial question whether, if a man marries in ignorance of his wife's mutilation, he is not entitled to relief. There is no authorized view of marriage other than that it is an institution for procreation. We presume that for the majority of persons such is the ultimate object of the surrender of sexual liberty. Probably some other court will now hold that the husband has cause for action in not receiving the "nature, quality and substance" contracted for. However, there are some men with whom ovariectomized persons will be at a premium.

PSYCHOLOGY OF THE BIGGEST HUMBUG OF THE NINETEENTH CENTURY.

Since the death of Keely, of Keely motor fame, an interesting chapter has been added to psychology, but it may be that the subject is one more fit for the consideration of the alienist. From what has been said recently, an analysis of the character of the great charlatan proves unusually interesting. It is stated that this man Keely was "ignorant of the elementary concepts of science; that he ruthlessly murdered the English language; and that this hybrid scientist entrapped wealthy and cultured victims, depending upon the inexhaustibleness of human credulity." He seems to have been an inherent, practical psychologist, a master actor, the efficient wielder of adroit, forceful suggestion. He played the part of intense earnestness, and with antithetical hyperbole wrapped his deluded victims around his fingers as the housewife does yarn. His explanations and assertions fairly revel and teem in the quaintest and most unexpected construction—a compound of puckered and condensed nonsense. He purred about his "etheric forces," his "triune currents of a polar flow of force."

It is doubtful if earth has ever seen a greater psychological prestidigitateur. His laboratory was a veritable sense-deceiver. He used force in the most uncanny manner: with a tuning-fork, a mouth-harp, or a violin he set in motion seeming monstrous and incomprehensible forces. A correspondent of the *New York Sun* says: "With the aid of the concealed traps and tubes in his laboratory little figures moved up and down, wheels revolved, and enormous pressures were developed, and the select few who were admitted to the holy of holies were struck by the mystery." Any one who will read some of the Keely literature will be amazed at the fact that for years he held spell-bound and under his control cultured, keen and successful business men by such frenzied, irreverent and gyrating verbosity. Let us ask our reader if he can explain or understand the following Keelyian proposition:

"In motor ataxy a differentiation of the minor thirds of the posterior parietal lobule produces the same condition between the retractors and extensors of the leg and foot."

Here is a definition of insanity given by Keely which would fill the soul of a Hegelian philosopher with joy or almost tickle to death the aggressive soul of the psychological lawyer. Thus:

"There is good reason for believing that insanity is simply a condition of differentiation of the mass-chords of the convolutions which create an antagonistic molecular bombardment toward the ventral or attractive centers of such convolutions."

Keely himself is not unlike the definition of differential: (1) "A differing in amount or in the producing force." Said of motions and effects. (2) "Intended to produce or indicate difference of motion or effect." Said of machinery.

Professor Carl Henny said of Keely: "I have often wondered whether Keely was a fool or a knave; by which I mean, whether he was ignorant of the well-established laws of nature, and was, therefore, groping in the dark, or whether he practiced deception in order to get money from his supporters. I am now satisfied that he was both a fool and a knave."

INTERNATIONAL CONGRESS OF OPHTHALMOLOGY.

The Ninth International Congress of Ophthalmology will take place in Utrecht on August 14th, and four following days. The work of the session will be divided into three sections: (1) anatomy, pathological anatomy, and bacteriology; (2) optics and physiology; (3) clinical methods and operations. The committee of organization of the congress are as follows: President, Dr. Argyll Robertson, of Edinburgh; Secretary-General, Mr. George A. Berry, of Edinburgh; and Professor M. E. Mulder, Professor M. Straub, Professor W. Koster, Professor H. Snellen. The official languages will be English, French, and German. Gentlemen expecting to attend this meeting are requested to communicate with Professor H. Snellen, 622 Wittevrouwenstraat, Utrecht, and inform him whether they will be accompanied by ladies. We can assure our ophthalmological friends of a pleasant time if they attend this meeting. Utrecht is an interesting city, in which the great Donders did his work. The Hollanders are among the most charming of entertainers.

MEETING OF THE TRI-STATE MEDICAL SOCIETY.

On April 4th and 5th the Tri-State Medical Society of Iowa, Illinois and Missouri will meet in Quincy, Illinois, under the presidency of Dr. C. E. Ruth, of Keokuk. An elaborate program is being prepared, and from present indications we can announce that the coming meeting will be one of the best ever known in the history of this progressive society. Quincy is a thriving city of forty thousand population, and has an excellent class of medical men and women. Our readers can expect no disappointment at their hands.

THE KANSAS CITY ACADEMY OF MEDICINE.

There is no medical society in the West doing more good than the Kansas City Academy of Medicine. It is the salvation of the profession in that city. It brings men together, causes them to fraternize, broadens them, and the result is a united body representing the best elements. There is practically no trouble in medical circles in Kansas City. It is the Academy which has brought about this desirable result.

The writer was recently a guest at the sixth annual banquet of the Academy. What he saw, and what he imbibed, made a deep impression upon him; and he left feeling that it would be a glorious thing if every city in America had an Academy the equal of that in Kansas City.

DEATH OF DOCTOR ETHERIDGE.

Dr. James H. Etheridge, Professor of Gynecology in Rush Medical College, died suddenly in Chicago on the 10th instant. This occurrence will come as a personal loss to thousands of physicians who knew Dr. Etheridge, either as their teacher or as a fellow-member of various scientific societies. He passed away in his fifty-fifth year, universally respected and admired.

Dr. Etheridge's death is a loss to this publication. He was one of the first and most willing contributors, and always had a kind word for the TRI-STATE.

ANOTHER PIECE OF EVIDENCE AGAINST THE CIGARETTE.

In a recent article upon the use of tobacco, we learn that science has calculated that an average puff from the cigar sets free over 2,000,000,000 tiny particles, a whiff from a pipe liberates over 1,800,000,000 of these particles, whilst one whiff from a cigarette starts 2,900,000,000 of them circling in the ambient air. So that as regards the number of particles the cigarette has 900,000,000 more than the cigar and 1,100,000,000 more than the pipe. Upon this basis, if particles do harm, the pipe is least hurtful—the cigarette most so.

ORIGINAL ARTICLES.

CHOLERA INFANTUM—A SURVEY OF THE FACTORS IN THE ETIOLOGY OF INFANTILE DIARRHŒA, WITH SPECIAL REFERENCE TO SOIL, SANI- TATION AND HYGIENIC CONSIDERATIONS.

By W. L. BROWN, L. R. C. P., L. R. C. S. (Edin.), etc., of
Glasgow, Scotland.



THE term cholera infantum is comparatively modern, dating from 1773, and was first employed by the famous American physician, Benjamin Rush, professor of the University of Pennsylvania. "By this name," he says, "I mean to designate a disease called, in Philadelphia, the 'vomiting and purging of children.' From the regularity of its appearance in the summer months, it is likewise known by the name of the 'disease of the season.' It is distinguished in Charleston, South Carolina, by the name of the 'April and May disease,' from making its first appearance in those two months. It seldom appears in Philadelphia till the middle of June or the beginning of July, and generally continues to the middle of September."

Under a different name, the history of this malady can be traced continuously from the pre-Hippocratean era of medicine to the time of Benjamin Rush, and an interesting research it makes. It can be traced in nearly every part of the world, so wide-spread is its geographical distribution; though, on the authority of Dr. Jackson, it seems that Barbadoes (*Boston Medical and Surgical Journal*, 1867, July) is an exception to the otherwise general distribution of the disease.

From the time of Rhazes, practitioners and writers on the subject have ascribed various causes for the onset and continuance of this disease. Rhazes held that it occurred "when the child has been bound up by colds or by the corruption of the milk from bilious humours or phlegmatous humours." Sydenham did not give up the humoral theory, and held that it arose from "hot humours and corrupt nourishment." Willis was the first to ascribe it to some chemical action, which he called "acid fermentation in the stomach." De la Bœ Sylvius, the Dutch chemist, followed, ascribing it to some "sour humour originating in the sweetbread."

The first glimpse of modern theories of the causation of this disease are obtained from Morgagni's "Seats and Causes of Disease" (Vol. II, Book III, Letter 31, Article 9). Morgagni speaks of intestinal discharges free from blood, the "yellow, green, watery, and others of this kind," as

being destructive, not only from the "pain," but also from the "quantity." "And," he continues "all these excretions generally owe their origin to some stimulus that irritates the intestines by what means or from what part soever it got down into them; for as we see that a great quantity of humours is discharged by means of medicine violently purgative, so we may suppose that from some stimulating fluid *which is generated within this canal* or sent down thither from the arteries, the same thing must of course happen." He could not suppose that the symptoms could be caused by "bile" merely. Willis (*Pharmac. Ration.*, f3c3) had described a form of diarrhœa "almost watery" attended by "gripping tortures," which overspread London in 1670, in which the discharge was so great and weakness so pronounced that if an equal quantity of pure blood had been discharged it could not have produced equal weakness.¹

"Motion and irritation," he held, could be propagated from the stomach to the intestines.

The seasonal recurrence of the malady had also attracted the attention of Willis. He speaks of its "autumnal" recurrence, and says: "For the same time (p. 73), the same year, the same city, London, had intestinal fluxes spreading through it epidemically, without blood indeed, but attended with "gripping tortures."

Willis describes the discharges as "watery fluxes," and Sydenham terms them "mucous fluxes."

The idea that external heat was a factor in the causation of this disease seems to have arisen in America. Thus in Rush's work we find a statement (see Ch. I., p. 14) that "its frequency and danger are always in proportion to the heat of the weather." Prior to that time the origin of the disease had been variously ascribed by American practitioners to "worms," "summer fruits," and "dentition," each of which causes Dr. Rush thus tersely disposes of: Dentition could not be a cause of a periodic illness; worms had never been discovered at a post-mortem examination; and children a year old living in towns were not likely to eat more fruit than children in the country at the same age. An American homœopath, W. A. Edmonds, *American Institute of Homœopathy*, 1881) describes the disease as "the lot of infancy in hot weather of all climes." Heat was henceforth the main theory, and doubtless there was a great deal of evidence to support it. From whatever place statistics were available, heat was a constantly observable factor. The general prevalence of this disease and its highest mortality occurred almost always simultaneously with the hot periods of the year. Thus in Berlin in 1877-1882, the total deaths amounted to 17,641, of which June had 14,418, July 6,226, August 2,889, respectively. The thermometer came to be looked upon as an index for an outbreak of this disease. Whenever the "summer level" was reached (62° to 66° Fahr.), the expected outbreak usually occurred. This view was endorsed by Dr. Ogle,² who suggested that the death-rate followed the "mean weekly" temperature; that it became high as soon as that temperature reached 63° Fahr.

This appears to be a very good index, for in many of the Southern States this "summer level" is reached in spring-time, and the disease

¹ Carolus Piso "de Diarrhœa Serosa" (Observ. de preteritis, hæcten morbis ab aqua ortis. sect. 4.c. 1).

² 45th Registrar-General Annual Report, London, 1885, p. 13.

comes to be known in Charleston, for instance, as the "April and May disease." Within certain limits, therefore, a definite relationship can be shown to exist between the high temperature and high death-rate from infantile diarrhœa. This view, however, was not the only one propounded, and which received much support. Robert Pemell, an old practitioner of 1653, referred the cause of the trouble to the humors flowing to the belly, causing the "fluxes." These humors were started because "they suck or drink more than then is meet." He imagined that the disease was most frequent in "moist children," and disposes of the heat argument by suggesting that "there cannot be so much heat as to produce so much acrimony and saltness."

Dr. Ballard³ in 1880 conducted an investigation on the effect of heat as a causal agent, but came to the conclusion that mere heat was not a sufficient cause of the disease. "It is not," he writes, "the main cause of the diarrhœal mortality, but is exerted indirectly."

Many other factors have been suggested to account for the origin of this disease. The weather has always been regarded as a factor. Cold brings the epidemic to an end, and a lowering of temperature diminishes the mortality. Moisture seems to prevent a number of deaths, probably because the evaporation tends to reduce the temperature. No very definite statistics can be obtained to show the effect of climate on this disease, although some writers assure us that in tropical countries children are more or less immune from the disorder.

Sea level has been mentioned as a factor. Stephanos, a Greek physician, mentions that this disease is disastrously prevalent on the low plains and islands in Greece, while it is seldom seen in the higher lands, where the temperature is more moderate.

The influence of soil has received deep consideration from writers on this subject, especially Buck and Franklin.⁴ On this point there has been considerable diversity of opinion. Some hold that wetness of the soil is an important factor, and others that the mortality seems to have some ratio to the highness or lowness of the sub-soil water of the district. Ballard thinks the soil possesses a decided and distinct importance. A rocky soil, with little superincumbent material, lowers the diarrhœal mortality. On the other hand, a loose soil, freely permeable by water and air, is apt to give a high mortality. We may quote more fully what Ballard has to say on this point: "Dwellers on loose, slabby soil, as commonly seen overlying solid rock, have more or less diarrhœa, in proportion as the slabby material is in small pieces and mixed with looser earthy matter, or in larger blocks with little intervening earth. Clay soils, other things being equal, do not appear to be in themselves among those soils specially favourable to high diarrhœal mortality; when they have seemed to be so, the connection has appeared to me to be otherwise explicable. A soil which is a mixture of clay, sand and stone (commonly called "marl") is apparently favorable or unfavorable to diarrhœal mortality in proportion as it is loose and permeable to air and water on the one hand or plastic on the other. The presence of much organic matter in any soil renders it distinctly more favorable to high diarrhœal mortality than it otherwise

³ Loc. Gov. XXXV Report, 1889, p. 2.

⁴ *Medical Times and Gazette*, January, 1876, p. 94.

would be." Sir R. Thorne-Thorne, as one would expect, endorses and amplifies this view. "There is strong presumption," says Sir Richard Thorne, "since the late Dr. Ed. Ballard's researches, that the question of 'soil' is in this disease a most important factor, and that the essential cause of it is bound up with the life processes of a micro-organism—not yet definitely differentiated—which exhibits its vital manifestations in the superficial layers of the earth. The differing circumstances of the soil seem to have a most important influence in determining whether the organism is to live and multiply or whether it is to be deprived of its power for mischief." The medical officer of the Local Government Board believes that in presence of organic matter of towns the vegetative vitality of the bacterial or immediate causal agent is likely to be ensured.

On the other hand, it has been found that excessive wetness and complete dryness of soil appear to be both unfavorable to diarrhœa. The degree of moisture specially favorable is defined as an amount of habitual dampness which is decided although not sufficient to preclude the free admission of air between the elements. It might be well to contrast with these views some statements which apparently controvert them. Thus, if we examine the table of deaths from cholera infantum at Berlin during the summer months in conjunction with the corresponding sub-soil water level, compiled by Hirsch,⁵ we seem to obtain some evidence that the condition of the sub-soil water cannot altogether be relied on as measure of the rate of mortality or as a guide to the incidence of the disease. The same thing may be said regarding the fluctuation of ground water.

Table of deaths from cholera infantum at Berlin during the summer months, with the corresponding sub-soil water level:

June	Height of Sub-soil Water	Deaths	July	Height of Sub-soil Water	Deaths	August	Height of Sub-soil Water	Deaths
1882	1.60	533	1880	1.47	1136	1880	1.42	448
1880	1.63	950	1882	1.51	829	1877	1.49	469
1881	1.71	508	1878	1.67	770	1881	1.52	480
1878	1.82	826	1877	1.69	1207	1878	1.55	431
1877	1.90	785	1879	1.75	991	1882	1.62	570
1879	1.91	816	1881	1.83	1293	1879	1.65	554

To this group of external atmospheric, sanitary, and hygienic causes, come to be considered other factors, such as the density of the population, and the crowding together of dwelling houses, factors which affect the intensity of every zymotic disease and have no special exclusive influence on infantile cholera in particular.

The population of London, as we have seen, increased in two hundred years from 500,000 to 5,000,000; but there is no corresponding increase of the mortality from infantile diarrhœa. Suggestions, indeed, appear to show that it has rather diminished in proportion to the increased population, and the death-rate from infantile diarrhœa now is only a little larger than the mean death-rate from the same cause for England and Wales. A distinction, however, has to be drawn between the increase of population and the

⁵ Hirsch's Hand-book of Geographical and Historical Pathology, vol. iii, p. 385.

density in certain localized areas. Increase in the density is usually, it appears, followed by a distinctive increased fatality.

It is scarcely possible to mention any sanitary abomination which has not been alleged as a causal agent in the production of infantile diarrhoea. Noxious sewers, nauseous smells, proximity of cess-pools and ash pits, back-to-back houses, dirty and dismal surroundings, have all had their share of blame for creating outbreaks of excessive virulence of this disease. These factors must also hold good in any zymotic disease, and have no distinctive significance as the causal agents of this particular malady. In areas teeming with courts and closes, back-to-back houses where the air is still and confined, one naturally expects outbreaks of diarrhoea at all periods of the year, but of a character not suitable for classing among zymotic or epidemic diseases. A contaminated water supply has also been blamed; but what infant of a year old drinks water in sufficient quantities to bring about virulent diarrhoea? Many improvements in town dwellings have been made—streets are built wider, back-to-back houses have been largely abolished, more open spaces are provided, more light, better soil, less affluvia, and better appliances for removal of unsanitary material.

Sanitary improvement, however, does not seem to have abolished or even greatly mitigated the disease, even in those towns where improvement was most called for and where most has been done. In 1851 Leicester stood out prominently as a town virtually without drainage and without hygienic relations of importance. The death-rate was exceedingly severe, especially in the years 1849, 1850 and 1851. The population for each of these years was 58,000, 59,000 and 60,000, respectively. The percentage of mortality among children under one year was, roughly, 28, 29 and 29 for the respective years. The birth-rate and the mortality increased in almost arithmetical ratio with the increase of the population. This continued for many years until the deep drainage of the town was completed. In 1858 the zymotic death-rate began to fall. The improved drainage of Leicester in 1855 did not prevent an epidemic of fever in 1857, or an increase in diarrhoea mortality from 115 the preceding year to 202 in that year. It is strange that in 1858, "a cold impoverished year," with an excessive local death-rate the percentage of diarrhoea mortality fell to 56 as compared with 202 in the year 1856.⁶

Since 1837 more attention has been given to a group of causes which may be classed as "those dependent upon the mother." Sir William For-
dyce,⁷ in "A New Enquiry Into the Causes, Symptoms, and Cure of the Putrid and Inflammatory Fevers, with an Appendix on Hectic Fevers," London, 1773, p. 107, thought that about 20,000 children in London, Westminster and the suburbs were ill with this disease, and that it was caused in the children of the upper classes by mistaken regimen and the improper manner in which children were reared, for, says he, "they live in hot bed-chambers, are fed on meat before they have teeth, on biscuits not fermented, on buttered rolls or tough muffins, calves' feet jelly, or strong broths."

Every practitioner knows that the disease does not always break out in debilitated babies or cease badly-nourished babies only. It attacks children to all appearance healthy and sound; and whilst most prevalent in

⁶ Sanitary Record, London, 1879. x. 193, 196.

⁷ "A New Enquiry Into the Causes, Symptoms, and Cure of the Putrid and Inflammatory Fevers, with an Appendix on Hectic Fevers," London, 1773, p. 207.

its epidemic force and fatality amongst the children of the poorer class, it does not restrict itself to that class, but visits the rich, well-nourished, well-housed, and well-clad, in districts which could scarcely be called the poorer districts. Sir Richard Thorne-Thorne is inclined to disagree with those facts and to maintain that no milk from the mammary gland of its mother ever caused the death of an infant from this specific summer diarrhœa.

Creighton⁸ suggests that the outbreaks may be accounted for from lowered vitality due to weakness inherited from the parents. He illustrates this by observing that a most serious outbreak of cholera infantum occurred in 1720, at the time of the drink mania, when the parents were constitutionally weakened by excessive intoxication.

This is purely an *ex parte* statement, made by one of those doctors who attribute to one cause "all the social, moral, and physical evils of humanity." Creighton was, most of his life, a rabid teetotaler, inebriated with the prejudices and bias of that class. There is no evidence even of the statement; for during the "drink mania" English arms were everywhere conquering, and English brains shone then with a luster scarcely surpassed in the best days of ancient Greece. Our former study makes it obvious that cholera infantum by no means attacks only the weakest children who have lost the "stamina vitæ," as suggested by Creighton.

For every case of diarrhœa occurring in children under five, there are probably four times as many above that age who suffer in the same way.⁹

Ballard¹⁰ actually shows that forty-two per cent. of deaths occurred among "healthy" children as against fifty-seven per cent. in "weakly," and concludes: "Our experience of these Leicester epidemics by no means supports an opinion commonly held, that a summer diarrhœal epidemic makes its first fatal swoop upon the weakest children."

From the figures given in support of the statement, it appears that previous general health has very little to do with even fatal cases. It is a matter of common observation among practitioners that the fattest and healthiest children frequently succumb to the trouble, while those apparently "weak and staminaless" pass through it with their lives. Mortality statistics, however, take no account of the enormous multitude of cases of infantile diarrhœa which recover under treatment. In 1895 no less than 10,554 children died from diarrhœa, a number representing a very small proportion of those attacked but who recover. Of recoveries we know nothing statistically, and this makes the mortality statistics somewhat misleading. It may be true, however, that, as a general rule, weakness has much to do with "speedy collapse of the most rapidly fatal cases and with the cases that last over forty-eight hours." Dr. Ballard estimated that out of every seventy-five children twenty-six of those who died were "not weakly."

Since it appeared from the first census report that the brunt of the mortality fell upon industrial towns where many women are engaged in some form of outdoor employment, persevering efforts have been made by medical officers to effect some legal restriction as to the working hours of

⁸ Creighton: "Epidemics in Britain."

⁹ Lancet, 20th August, 1887. Article by Dr. Tomkins.

¹⁰ Report to Loc. Gov. Board, pp. 43-45.

married women. Dr. Tatham¹¹ would have such women prevented from returning to work too soon after child-birth. Dr. J. Reid¹² is of the same opinion, and would have mothers legally restrained from industrial occupation for some time after child-birth; while Dr. Weir¹³ argues that it is useless to expect that "parents and guardians of the infant population will either reform themselves or be reformed while the sewer is held up as a source of every ill of babyhood," and suggests the following sweeping remedies as more likely to modify the high death-rate from infantile diarrhoea than from any other cause:

- (1) Prohibition of outdoor labor among married women.
- (2) Curtailing of boy and girl marriages.
- (3) Prohibition of baby-farming.
- (4) Prohibition of quack drugs.
- (5) Postponement of vaccination to the age of six months.

Since 1879 baby-farming has been prohibited, the vending of quack drugs placed under act of Parliament, boy and girl marriages are less frequent, and in Leicester, at any rate, early vaccination would not be an agent likely to cause infantile diarrhoea, especially in the winter season. In Leicester the total births in 1895 amounted to 5960, of which 273 illegitimate births showed that boy and girl marriages were less frequent. It would be interesting to know what Dr. Weir proposes should be done with these 273 children. In 1857 the deaths in Leicester from diarrhoea were 202. In 1860 there were only 56 deaths in Leicester. In 1895, out of a population of 174,624, the deaths amounted to 362.

Such regulations are either merely but palliators of the disease or else do not affect it at all. No class of women are harder worked or labor under more trying circumstances of climate and occupation than the agricultural classes, whose children least frequently suffer from diseases of this kind. When their arduous bodily labor is compared with the work of women in Yorkshire and Lancashire, or in such towns as Leicester, Worcester, Northampton, Coventry, Norwich, Birmingham, Nottingham, and Preston, it is found that in industrial centers women work under much better conditions than in agricultural districts, or even than women engaged in the lower forms of domestic work. In Preston thirty-two per cent. of women work in cotton mills, well ventilated, well lit, with no excessive prolongation of hours. In Leicester twenty per cent. and in Northampton thirteen per cent. are engaged in the boot-making trade, which means sewing, stitching, packing, and such work, all of which are comparatively light occupations, with moderate hours. Other industries for women are glove-making, silk-weaving, and others of a similar nature. In face of these facts, it would be absurd to apply legal restraint as a preventive of infantile cholera. Palliative remedies of that class are based upon an absolutely wrong idea of the etiological causes which bring about these periodic outbreaks.

Most of these remedies have been suggested on the supposition that the infants of these women are more likely to be neglected than if the women nursed them themselves, and this seems to be borne out by the exceptional mortality which exists among illegitimate infants. Dr. Ballard

¹¹ Brit. Med. Journal, 1892, vol. ii., p. 277.

¹² Brit. Med. Journal, 1892, vol. ii., p. 275.

¹³ San. Rec., London, 1879, x., 193-196.

is inclined to think that the whole question of the occupation of women outside the home resolves itself into the question of maternal neglect, with the substitution of artificial feeding for feeding at the breast.

A third group of causes to which outbreaks of infantile cholera have been attributed are those in which the child itself has been alleged to be the factor.

All maladies to which infants are prone have for ages been attributed to causes quaintly summarized by Walter Harris in his work on "Diseases of Children" (1693):

- (1) To their catching cold.
- (2) To the too thick milk of the nurse.
- (3) To their oversoon eating flesh.
- (4) To the mad and imprudent fondness of mothers and many nurses, who do often permit their infants to sip up wine and other strong spirituous liquors.

Regarding the last of these items, it is interesting to note the early American views of the value of wine in infancy, as laid down by Dr. Benjamin Rush. He recommends in this disease the use of "sound old wine, in the summer months, from a teaspoonful to half a wineglassful every day, because," he says, according to his observation, "children who sip the dregs of the wine that their mothers have been drinking are much less subject to cholera infantum than the children of the poor." The second of these causes Harris characterizes as the great danger to "sucking infants." "Upon how inconstant and slipperie a plan doth the health of these innocent children shift. It's this," he says, "that are the frequent occasions why we hear so often the sound of the passing bells for some one child that it is undeservedly atoning and expiating the faults and mistakes of its nurse." He adds: "If this coagulated or poisoned food fall from their stomachs into the intestines, then 'gripes and colic pains, greenish excrements, and very often most dangerous fluxes, do ensue.' (Page 39.) "From the middle of July to the middle of September these epidemic gripes of infants are so common (being the annual heat of the season doth entirely exhaust their strength) that more infants affected with these do die in one month than in other three that are more gentle."

The question of nursing is a cause that has ever been enlarged upon and has afforded inspiration to the pens of the "poet" doctors of former days. One poet thus advises the overindulgent mother to deal wisely with her infant:

"Oh! be not tempted by his artless smiles
On fondness, that a mother's mind beguiles
To load his stomach with digestless meats,
But keep a medium in whate'er he eats,
Lest that wherewith great parent nature strives
(The better nurse) to lengthen infants' lives
And make their bodies grow, you misapply
And the poor child in dangerous sickness lie
From painful vomitings, and other woes,
To which o'erloaded stomachs still dispose."¹⁴

¹⁴ Tytler's *Pædotrophia*, Lond., 1797, bk. ii, 92, i. 515 to 524.

Similarly, Dr. Underwood on this subject remarks (vol. ii, p. 242): "So many little infants fall a sacrifice to the use of undigested food under the age of six months, being carried off by vomiting, purging, or fits, that whoever would preserve them over the most dangerous period of infancy, cannot too cautiously attend to their diet at this time."

The following poem by Luigi Tansillo (1510), which evidently inspired Scevole de St. Marthe (born 1536), is a very interesting account of Roman customs about the beginning of the 16th century, and throws considerable light on the habits of the Italian matrons of that period and on the practice of employing foster mothers. The author gives his views very plainly on the desirability of infants being nursed by their own mothers:

"Were modern truths inadequate to shew
That to your young a sacred debt you owe,
Not hard the task to lengthen out my rhyme
With sage examples drawn from ancient time."

It seems strange to invoke the authority of antiquity in support of a practice so essentially necessary to the very existence of the human race as that of a mother suckling her own child. As a satire upon his countrywomen Tacitus notes this custom as a peculiarity among the mothers of ancient Germany.¹⁵

If the reverse of this had been true, and the historian had remarked that women of rank thought themselves degraded if they nursed their own offspring, and such task was therefore delegated to the lowest of the people, it might have been thought extraordinary, and would almost have rivaled the fashionable practice among the inhabitants of the South Sea Islands, of exposing their children, a practice much more similar, both in its motives and effects, to that of sending out a child to nurse, than is generally imagined.¹⁶

"Of Rome's twin founders oft the bard has sung,
For whom the haggard wolf forsook her young.
True emblem she of all th' unnatural crew,
Who to another give their offspring's due."

By the ancients the qualities of the suckling mother were held to be imbibed by the food which was employed to rear them. Thus Romulus and Remus were said to have imbibed the ferocious qualities of the wolf.¹⁷

Many writers still incline to this view of the causation of epidemic infantile diarrhoea. This view is still held in Italy,¹⁷ and doubtless this accounts for the high infantile mortality in Italian towns, crowded, dirty, and densely populated. It is a matter for wonder how any babies are

¹⁵ "Sua quamque mater uberibus alit, hec ancillis ac nutricibus delegantur."

¹⁶ "An non expositionis genus est, infantulum tenerum, adhuc a matre rubentum, matrem spirantem matris opem ea voce implorantem quæ movere dicitur et feras, tradere mulieri fortassis nec corpore salubri nec moribus integris; denique cui pluris sitpecunie, pax illam, quam totus infans tuus?"

¹⁷ "E per prova si è visto infin, che quegli,
Ch' ebbe latte di bestia, fu efficace
A farlo bestia diventare anch' egli.
Ebbe Romolo, e Remo una vorace
Lupa per Balla; ed ambedue redaro
L' inclinazione sua ladra, e rapace."

"The Nurse," a poem translated from, the Italian of Luigi Tansillo by William Roscoe.

reared in Venice at all. The women are so utterly ignorant of the plainest rules, so devoid of common sense, so jealous of their husband's interference, and so skeptical of the parish doctor, that infant mortality is appallingly high. Many a man will tell you that he has eight or ten children, but, on inquiry, it will turn out that only four or five are living. It seems that quite a half of those that are born die in infancy, and a wife lays her account to lose her first three or four. She informs you quite calmly that it is difficult for them to live. Later on she may become a little more careful and experienced, but even so the waste of infant life is terrible and the dangers that surround the infant immense. If, however, it does survive black coffee, sour wine, and raw apples freely administered during its first ten months, which bring on groppo (infantile diarrhœa), convulso, riscaldamento, and escapes the concoctions, lotions, and prescriptions of the old crones of the quarter, it will probably grow up into a fine and healthy man, robust, sane, and happy.¹⁸

On the other hand, Trousseau, who devoted much attention to this disease, does not include "feeding" among his group of "causes." He attributes the main cause to the influence of "season," and illustrates the fallacy of attributing feeding and bad hygiene as the main cause by quoting the case of his own grandson, who required very vigorous and prolonged treatment, and the case of two twin sisters, daughters of a rich bourgeoisie, who were so reduced by the diarrhœa that at seventeen months old the one weighed fifteen and the other sixteen pounds, and were so emaciated that the nurse could not be induced to take them out for carriage exercise.

The modern scientific view inclines in the direction indicated by Trousseau. It has received the confirmation of the experience and research of Dr. Ballard, whose opinion on this subject is of consequence:

"Although there is ground for the popular notions which associate epidemic diarrhœa with the consumption of articles of diet, the almost equally common notion that such diarrhœa arises from the indigestibility of food or from faulty digestion on the part of the consumer of it is not, I am disposed to believe, so well founded; rather I am inclined to think that epidemic diarrhœa due to food or arising from some extraneous substance in the food is by itself no sufficient cause of the malady. As regards the influence of the mode of feeding of young infants, incidence of diarrhœal mortality upon infants fed, on the one hand, exclusively on the breast, and on the other hand partially or entirely upon other kinds of food is of special interest. The general conclusions arrived at by medical men who have studied the matter, and by medical officers of health who have adduced statistics in support of their opinions thereon, are generally to the effect that infants fed from the breast are remarkably exempt from diarrhœa as compared with infants that have been fed otherwise; and that feeding from 'a bottle' has been principally concerned in the fatal diarrhœa of infants. But my difficulty about accepting these conclusions in their entirety has hitherto been absence of data as to the proportion of healthy children fed in these different ways.

"In this difficulty Dr. Hope, assistant medical officer of health for Liverpool, has come to my assistance, and has made some comparative

¹⁸ "Life on the Lagoons," by Horatio F. Brown, p. 225.

statistical enquiries among the infants in that city who were healthy and among others who had died of diarrhœa in the summer season, and the general result of his enquiry, so far, is this:

(1) "That infants fed solely from the breast are remarkably exempt from fatal diarrhœa. Even among the low class Irish the degree of exemption being exactly the same among the Irish as among the English and other races in this city.

(2) "That infants fed in whatever way with artificial food to the exclusion of the breast milk are those which suffer most heavily from fatal diarrhœa.

(3) "That children fed partially at the breast and partially with other kinds of food suffer to a considerable extent from fatal diarrhœa, but very much less than those who are brought up altogether by hand.

(4) "As respects the use of 'the bottle' that it is decidedly more dangerous than artificial feeding without the use of the bottle.

"From observations which I have made," he continues, "it is to be inferred that the circumstances of 'food-keeping' and its exposure to telluric emanations (*e.g.*, in underground cellars), or to emanations from accumulations of domestic filth, etc., (*e.g.*, when kept in pantries, etc., to which such emanations have more less free access), tends to render the food liable to produce diarrhœa, especially where the storing place of food is dark and is not exposed to currents of air."¹⁹

It must be borne in mind that artificial forms of feeding are, to a large extent, of quite modern origin, and cannot account for the outbreaks of this disease described by Rhazes or even by Sydenham. A prejudice seems rooted in the human mind against artificial feeding of infants, and that prejudice has existed in nearly every country, and by no means among uneducated people. It exists in England to the present day, and many Scotch mothers still hold the traditionary views which have been handed down to them from the time of Antiphanes. Many mothers in Scotland will not rear their infants on cow's milk lest they grow up clownish and vulgar, rude and coarse, both in appearance and behavior. In the ancient annals, whether true or merely a poetic fiction handed to posterity, we read of strange foster mothers. Romulus was suckled by a wolf, Sirius by a bitch, Telephus, the son of Hercules, by a fox, Pelieus, the son of Neptune by a mare, and lastly, Ægisthus by a she-goat.²⁰ Tradition relates, as we have before observed, that all these celebrities imbibed the characteristics of those animals and displayed them throughout the whole of their subsequent life. Perhaps the first mention of the deliberate artificial rearing of children has been handed down to us on the testimony of Antiphanes, who states that the Scythians, a very strong and numerous race, gave their children, immediately after their birth, the milk of domestic animals. This treatment was specially adopted by that nation to get rid of certain diseases which the mothers thought their children caught from their Grecian nurses. This was in the time of Alexander the Great. If we consider Moses, the conditions of his early life would lead one to the probability that he was fed by some artificial means; at least, a similar legend

¹⁹ Ballard's Report to Loc. Gov. Board, 1888, p. 6.

²⁰ Talbot: A Fragment of Assyrian Mythology in Transactions, I., pp. 272-277.

is related of Sargon-sarali of Akkad, B. C. 3800, who, it appears, never knew his father. But his mother was a princess.²¹

The fable reads thus: "My mother was a princess; my father, I did not know him. My mother, the princess, conceived me and secretly gave birth to me; she placed me in a basket of reeds, she shut up the mouth of it with bitumen, she abandoned me to the river, which did not overwhelm me. The river bore me, it brought me to Akki, the drawer of water," etc.

The Egyptian Horus is always represented as being breast-fed. In Egypt the mother had full charge of the child. The bottle, if it is a factor at all in the causation of infantile cholera, is a comparatively modern factor. The weight of present opinion inclines in the direction of attributing this periodic epidemic of diarrhœa to some organic changes produced by micro-organisms, or by some mechanical decomposition, which may be dependent upon various factors for their existence, such as we have indicated—the conditions of season, conditions of soil, the presence of micro-organisms and of albuminous material. The food of the infant, therefore, is an etiological cause which must be carefully examined in a search for the causation of these outbreaks. How it behaves in the presence of bacteria or other organisms, what chemical changes it undergoes in the body, and whether from it by these agencies it is capable of producing some kind of substance which acts as a virulent chemical poison, produced by the body itself, which may prove to be the cause of these epidemics.

The more recent views on etiology of this malady may be briefly given. Emmet Holt records that out of nearly 2000 fatal cases only three per cent. had been breast-fed. This immunity, he says, is no doubt due to the fact that breast milk is sterile and not swarming with organisms, as cow's milk is apt to be. But this seems to be begging the whole question. He remarks that there is less plausibility about the disease being produced by sewer gas, emanations from the soil, or the ingestion of sour milk, although each of these may contribute to the causes of diarrhœa, but not the invariable cause, because infants fed on sour milk do not invariably suffer from diarrhœa; and Ballard has pointed out that diarrhœa is not specially prevalent in some towns where sewer gas is constantly present in the houses. There nevertheless is a strong probability that milk is the vehicle for the entrance of organisms or poisons into the system of the infant and a potent agent in the dissemination of infantile cholera.

Plugge has recently shown that some air bacteria are often present in milk, cow dung, hay seeds, street dust, and that they act on the casein, form peptones and ptomaines without even turning the milk sour. If this milk is injected into a guinea-pig it causes the death of the animal.

Baginsky failed to find any specific or pathogenic organism and thought that decomposition products were the real poisons.

Meinart thinks the disease is produced directly by the action of high temperature, sort of heat-stroke, having no connection with poisons.

The general tendency is to conclude that summer diarrhœa is a definite zymotic (see Farr) disease. That the high temperature favors the development of organisms, especially in milk, and produce many poisons,

²¹ Maspero: *Dawn of Civilization*, 1896, D. 597.

such as muscarine, or resembling it in its composition, which when taken into the stomach is capable of producing all the symptoms of irritant poisoning. As they flourish both inside and outside the body, there is good reason for believing that they play a part in giving rise to severe epidemic diarrhœa.

There appear to be some factors at work in some districts which are absent in others.²²

This view has recently received the adhesion of Sir R. Thorne-Thorne, who makes use of the following language: "As consistent with the view that the influence of soil is a prime factor in this disease, I may say that there are instances of towns standing almost side by side, which in density of population, in trade and occupation, in climate, and other like conditions, exhibit no appreciable difference. Yet whilst one town is notorious for its ever-recurring autumnal diarrhœa mortality, the other stands out with equal prominence, by reason of its maintaining comparative freedom from this fatal diarrhœa. The circumstances of soil in one place are to be thought of as responding to the requirements of the micro-organisms; in the other as failing to respond to them."²³

Modern pathology is inclined to regard "bilious diarrhœa," or cholera infantum, as due to some such causal agent with which we are as yet imperfectly acquainted. The modern belief points to the theory of poisoning, the cry raised in Spain during the epidemics of the Middle Ages, and to regard contamination of food or of water as the source of disease; but whether the poison is manufactured inside the body or outside the body is, like many another problem in medical science, not yet clearly made out. But enough has been done to show what important effects on the animal body are produced by the alkaloidal products of albuminous decomposition. Further inquiry into the etiology of this vast and tremendously important subject must proceed in the direction of enquiring how far infant food is capable of producing strongly irritant alkaloidal poisons, and whether these substances enter through the milk, through the mother, or are developed in the alimentary canal of the infant.

²² *Lancet*, 10th August, 1887. Tomkins.

²³ *Lancet*, November 6, 1897, page 1170.

Gonorrhœal Vaginitis.—Dr. Fairchild (*N. Y. Med. Times*, January, 1899), in an article on "Some Considerations in the Treatment of the Diseases of Women," says: "In the treatment of gonorrhœal vaginitis I place great faith in copious vaginal irrigation. No less than two gallons of water, and better still, three or four, should be used at each sitting. The temperature of the water should be slightly over 100 degrees F. at the commencement of treatment, but later be increased to a degree compatible with the patient's comfort. It is of great importance that in taking the injections the patient should lie flat on the back with the legs drawn up against the abdomen and the hips slightly raised by means of a pillow. A rubber sheet spread beneath her, with the lower end gathered up in a fold and placed in a pail will prevent the couch or bed from becoming wet."

OBSERVATIONS ON ONE THOUSAND CONSECUTIVE CASES OF ANESTHESIA IN THE SERVICE OF DR. A. J. OCHSNER, AUGUSTANA HOSPITAL.

By ISABELLA C. HERB, M. D., of Chicago.

The cases presented were operated on by Dr. A. J. Ochsner, at the Augustana Hospital, during the last fourteen months, beginning September 3, 1897, ending November 9, 1898, being the third thousand in a continuous series of observations; the first thousand having been reported by Dr. Lawrence H. Prince, the second thousand by Dr. G. W. Green. As in the other reported cases, this series includes only those in which a general anesthetic was necessary.

Of these one thousand consecutive cases three hundred and ninety-seven were males, six hundred and three females; fourteen were under one year of age, seven were over seventy years of age. The youngest was thirty-six hours old, the eldest seventy-seven years.

Chloroform was used alone one hundred and ten times, ether three times, chloroform and ether in all of the other cases. The longest duration of chloroform fifty-two minutes, ether seventy-seven minutes, chloroform and ether two and one-half hours. Shortest duration chloroform anesthesia five minutes, chloroform and ether ten minutes.

Average amount of anesthetic used was 8 cc. of chloroform, 115 cc. of ether. The average time to produce surgical narcosis, not unconsciousness, was eight minutes. The shortest time for induction was one minute. This little patient, operated on for spina bifida, was put to sleep and kept asleep for twelve minutes on 1 cc., or about fifteen minims, of chloroform.

Contrary to the opinion of some observers, Dr. Prince made the statement in one of his articles on anesthesia, that in his belief shock could be produced during profound surgical anesthesia by the manipulation of sensitive parts. In support of this opinion I will report in detail the following case:

CASE 2831.—Was a very fleshy man, forty-three years of age, an alcoholic who had a strangulated inguinal hernia. The patient was suffering most excruciating pains from the severity of the strangulation, which occurred in the hospital during an attempt at gastric lavage. Chloroform and ether were administered in the usual way within a few minutes after the strangulation occurred. It was found very difficult to reduce the strangulation by taxis, and with the beginning of the manipulations the patient showed a tremendous amount of shock. The pulse became more and more rapid, going up to one hundred and sixty beats per minute, and then became so weak that it could no longer be counted. Respiration was shallow and the body was covered with perspiration. The anesthetics and the manipulations were stopped, and the conditions were improved slightly. The reduction was then completed without giving any more of the anesthetic. The condition of the pulse remained dangerously weak for about two hours after the anesthetic was administered. A week later the same anesthetics were given in the same manner for an operation for a radical cure of the hernia, and the patient's condition

remained normal throughout the operation, his pulse and respiration being observed very closely. This seems to show that his previous condition was due to the shock caused by manipulation, rather than to the anesthetics.

The operations performed included one hundred and four appendectomies, one hundred and fifty-nine laparotomies, fifty-seven herniotomies, fourteen vaginal hysterectomies, nine kidney operations, twelve amputations, fifteen fractures, four old dislocations, one hundred and eight bone operations, one hundred and sixty-five minor gynecological operations, three hundred and fifty-five operations on soft parts not classified.

In presenting this subject of a thousand cases without a death, I have a double object. First, to advocate this special method of inducing anesthesia; and second, to make a plea for the anesthetic specialist. We believe that in every well-regulated hospital, or institution, where surgery is done to any extent, there should be an anesthetizer on the staff. This does not necessarily mean that this person should give every anesthetic, but it does mean that he should have general supervision, instructing the internes or assistants, making careful observations on the different conditions presented and keeping accurate records.

The method which I will briefly describe is the one invariably used in the Augustana Hospital, and was introduced in that institution by Dr. Lawrence H. Prince in 1896. The day before the operation the patient is subjected to a thorough examination, when the condition of the heart, lungs and kidneys is noted. A warm bath is given to stimulate elimination. In order to have the alimentary tract in the best possible condition the diet is limited to liquids, and one or two ounces of castor oil is given, to be followed the next morning by a warm enema. On the morning of the operation, when the patient is taken to the anesthetic room, the anesthetic number, date, name, sex, age, general condition, habits and time are noted. For this purpose we use the blank which I will pass around. The remainder of the blank is filled in after the operation is completed. The face is anointed with vaseline, a thick pad of moistened cotton placed over the eyes and anesthesia commenced, the patient being instructed to count after the anesthetizer. The inhaler used is the Esmarch mask covered with three or four layers of gauze, the number depending on the quality of gauze. The same mask is used for chloroform and ether, as well as the same method of administration, namely, the drop method. Chloroform is given till the patient is asleep or insensible, when ether is substituted. If, however, at any time during the administration of the chloroform the breathing becomes shallow or the heart embarrassed the chloroform is stopped altogether, suspended for a time or a few drops of ether given with the chloroform. The two anesthetics are never mixed together, but kept in separate bottles. In this way the exact amount of each can be regulated according to the discretion of the anesthetizer, which is a great advantage to one who understands the points of advantage and disadvantage of each of these agents.

We think the simple Esmarch mask superior to any other for ether as well as chloroform, because it allows an abundant admixture of air, which is desirable not only during anesthesia but to avoid after-complications. Patients do not become so thoroughly saturated with the poison, consequently the danger to lungs and kidneys is decreased, besides there

is less retching and vomiting afterwards, advantages not to be ignored by conscientious workers. No drugs are ever used, either before or during the anesthesia. As soon as sleep is induced the lower jaw is hooked over the upper and held in this position. We deprecate the use of gags, because they throw the jaw backwards, the very thing to be avoided. The head should be on a level with the body, a small, hard pillow being preferable to a feather pillow. The patient is not removed to the operating table till thoroughly asleep, and this is done as gently as possible. If removed too soon, he is sure to retch or vomit, and will consume as much time in going to sleep as at first.

The pupillary reflexes are an infallible guide to the degree of narcosis. No attention is ever paid to other reflexes. We believe touching the cornea is as unscientific as it is unclean. It tells you absolutely nothing further than that your patient is unable to resent the insult. A contracted, immovable pupil teaches us we have surgical narcosis. A dilated, immovable pupil has danger written everywhere; while a dilated pupil which reacts to light shows only partial anesthesia. A very trying position for an anesthetizer, and one which tests his judgment as well as the patience of the operator, is where the patient is asleep but holds the abdominal muscles tense during manipulations or breaking up of sensitive adhesions. If these patients are allowed a few whiffs of fresh air, and the anesthetic resumed, the spasm will pass away. On the other hand, if the narcosis is not complete, a few drops of chloroform will relax the muscles.

A word about artificial respiration, which we found necessary to perform in six cases. The tongue should be drawn out, the jaw held forward, the arms grasped near the elbows and swept around away from the body and over the head till they meet above it, then given a strong pull for a few seconds, then returned to their former position alongside the chest, making pressure against the lower ribs. This plan, if regularly carried out, should make about sixteen complete acts of respiration in a minute. As is well known, this is the regular Sylvester method of performing respiration, and you are all familiar with it; yet there is not one person in twenty who performs it properly. The arms are moved too rapidly and too great force is used on the chest. Stretching the sphincter seemed to be of some value. In no case was any drug used. The patient needs pure air and when supplied with it quickly revives.

In the first five hundred cases Squibs' chloroform and ether were used, in the last five hundred Mallinckrodt's were used. There was no difference observed in favor of either manufacturer's products.

It was observed that alcoholics and morphinists resisted the anesthetic for some time; but when they finally succumbed, it was with surprising suddenness and narcosis was very profound. When anesthesia is established, they require no more to keep them asleep than other patients.

Many times in young children we noticed a peculiar moan on inspiration which means spasm of the glottis. This may occur before or after narcosis is complete, and unless fresh air is allowed the child will stop breathing.

These observations seem to confirm the following conclusions:

1. If anesthetics are given carefully, according to the method described, difficulties of any kind are experienced in only a very small proportion of cases.

2. That a dilated, immovable pupil is a sign of danger before heart or respiration show any change.

3. That the Esmarch chloroform mask is superior to any other for ether as well as for chloroform.

4. That the method described requires less anesthetic and a shorter time for induction of narcosis.

5. That patients quickly revive when given fresh air, without the use of drugs.

6. That anesthesia should be more thoroughly taught in our medical colleges and hospitals.

In order to economize space the following classification has been condensed as much as possible, the various operations being grouped together according to the regions of the body.

Among the minor gynecological operations each patient had two or more operations, but only the most important is enumerated below:

Abdominal sections for appendectomy, - - - - -	104
“ “ “ excision ovarian cysts, - - - - -	24
“ “ “ ovariectomy, - - - - -	6
“ “ “ excision pyosalpinx, - - - - -	39
“ “ “ “ extrauterine pregnancy, - - - - -	8
“ “ “ Cæsarian section, - - - - -	1
“ “ “ myomectomy, - - - - -	5
“ “ “ hysterectomy (fibroid), - - - - -	16
“ “ “ cholecystotomy, - - - - -	8
“ “ “ inguinal colostotomy, - - - - -	3
“ “ “ exploration, - - - - -	12
“ “ “ for other conditions, - - - - -	37
Herniotomy for ventral hernia, - - - - -	3
“ “ inguinal hernia, - - - - -	39
“ “ umbilical hernia, - - - - -	3
“ “ femoral hernia, - - - - -	12
Nephrorrhaphy, - - - - -	6
Nephrectomy, - - - - -	2
Nephrotomy, - - - - -	1
Hysterectomy, vaginal (for carcinoma), - - - - -	14
Amputations, - - - - -	12
Reducing old dislocations, - - - - -	4
Operations for fractures, - - - - -	15
“ “ relief flat foot, - - - - -	2
“ “ club foot, - - - - -	8
“ “ anchylosed hip, - - - - -	3
“ “ “ shoulder, - - - - -	1
Suturing fractured patella, - - - - -	2
Amputation breast, - - - - -	18
Suprapubic cystotomy, - - - - -	7
Urethrotomy, - - - - -	10
Operations for relief enlarged prostate, - - - - -	15
“ “ hydrocele, - - - - -	12
“ “ varicocele, - - - - -	10
Plastic for hypospadias, - - - - -	1
Circumcision, - - - - -	17

Removal tumors from soft parts, - - - - -	32
Trephining skull, - - - - -	9
" mastoid abscess, - - - - -	5
Operations for cleft palate, - - - - -	12
" " alveolar abscess, - - - - -	6
" " epithelioma face, - - - - -	12
Tonsillotomy and removal of adenoids, - - - - -	9
Operations for hare-lip, - - - - -	5
" " nevus of face, - - - - -	7
" " actinomycosis face, - - - - -	2
Plastic on face, - - - - -	10
Enucleation of eye, - - - - -	2
Excision tubercular glands, - - - - -	46
Strumectomy, - - - - -	3
Tracheotomy for carcinoma larynx, - - - - -	1
Excision ganglion wrist, - - - - -	3
Plastic for contracture of hand, - - - - -	3
Lengthening of tendons for contractures, - - - - -	7
Excision of tubercular joints, - - - - -	18
Stretching sciatic nerve, - - - - -	1
Gunshot wound, - - - - -	2
Removal foreign body from leg, - - - - -	1
Morton's operation for metatarsal neuralgia, - - - - -	6
Operations for osteomyelitis, - - - - -	21
Removal of floating cartilage, - - - - -	3
Operations for anal fistula, - - - - -	31
Removal hemorrhoids, - - - - -	44
Minor gynecological operations, - - - - -	165
Excision coccyx, - - - - -	2
Resection ribs for empyema, - - - - -	6
Reduction hernia (taxis), - - - - -	1
Excision varicose veins of legs, - - - - -	18
Skin grafting, - - - - -	17
Excision spina bifida, - - - - -	2
Incision cellulitis, - - - - -	6
Operations on antrum, - - - - -	4
Total, - - - - -	1000

51 Lincoln avenue.

This blank is used, and carefully filled out with each case:

No.:	Date:	Sex:	Age:
Name:			
General condition and habits:			
Urinalysis before:			
" after:			
Preparation for anesthesia:			
Operation:			
Anes. begun:	Anes. ended:		Time:
Operation begun:	Operation ended:		Time:
Time for complete anes.:		Anes. and amt.:	
Method:			
Complications:			
Observations:			
Post anes. condition:			
Operator:	Anesthetizer:		

THE CRUSTACEOUS SYPHILIDE.

By A. H. OHMANN-DUMESNIL, of St. Louis.



THE various syphilides which are encountered are not only numerous in kind and in appearance, but the same one frequently presents varieties which are quite distinct from one another. It is this very diversity of appearance, as well as in distribution, which gives an added interest to the study of these lesions. And it is these varied appearances which so frequently add to the difficulties which beset the inexperienced diagnostician, or him who has not had ample opportunities to observe similar manifestations upon the skin. To him who has had experience the integument is as easily read as the page of an open book, not only in so far as the condition which is present is concerned, but also in regard to such other points as are connected with its history, such as the duration of the disease, the efficacy of treatment, and the proper observance of such rules as should have been laid down. Rapidity of perception and aptness in observing details are indispensable to him who aspires to be a good diagnostician of cutaneous eruptions; for these qualities enable him to formulate his questions in an intelligent manner and direct to the point. In other words, there is no groping in a haphazard manner, but rather a systematic and thorough examination which cannot fail of being fruitful of good results. In addition to this, it inspires the patient with confidence and leads him to furnish many valuable little points spontaneously in his efforts to aid the physician. But unless the latter convinces him, by his manner and method of investigation, that he is thoroughly conversant with the subject in hand, the patient is prone to endeavor to lead the physician astray and thus lead to a tedious and, perhaps, unsatisfactory conclusion in regard to the case. And to suppose that medication will clear up a diagnosis is a most erroneous idea, for two reasons: the patient may not take the medicine, or take it irregularly; or the medicine may have been prescribed in doses too small, or some other condition might be present which the same remedy might benefit. This little digression from the subject proper has been indulged in for the reason that many authors on syphilis are prone to dismiss the description of a syphilide in a few lines, and their readers are left with but a confused or hazy idea of what the eruption really looks like; and yet they sometimes decry descriptions which, whilst longer, enter into details of value to him desirous of learning.

Whilst it is essentially true that the term syphilide should properly be only applied to eruptions of syphilis which are only composed of primary lesions, it is equally a fact that it has been adopted to designate any cutaneous phenomenon due to syphilis, or following in the direct path of some other one preceding that under observation. Formerly known as the

syphilodermata, that term was abandoned as being too clumsy, and to-day we have the syphilides and, by analogy, the tuberculides and leprides. It should also be remembered that the expression primary syphilide does not refer to the chancre, but, rather, to the syphilide whose elements consist of primary lesions, such as macules, papules, pustules, etc. Of course, these eruptions are secondary in character, in contradistinction to the primary lesion (chancre), or so-called tertiary objective phenomena. By bearing in mind these distinctions, not only is much confusion avoided, but a better and clearer conception of a process may be had when it is described, and details can be much more appreciated in their true relationships to any condition which is present. A study of ulcers in general is of interest, which is intensified when we oppose to them that of specific or syphilitic ulceration. This latter includes within itself a number of different varieties which I have already had occasion to take under consideration in a previous paper in this series, and to which I shall not now refer.

It may be stated, in general terms, that among syphilitic eruptions which are observed in the later secondary period of the disease, the crustaceous syphilide is not only far from uncommon, but is frequently observed in neglected cases. As might be concluded from its very morphology, it is essentially a secondary outcome or sequence of some anterior stage, and is, as a rule, a sequela of a pustular lesion or aggregation of lesions. This, however, is not necessarily the case in every example which is seen; for it may also follow and be due to small, rather shallow ulcers. In any event, the crustaceous syphilide is susceptible of being roughly classified in the following three divisions: the disseminated crustaceous syphilide; the small crustaceous syphilide, and the large, aggregated crustaceous syphilide. This last must not be confounded with the rupial syphilide, which differs greatly, both in its morphological appearance, its history, and its mode of evolution. It is unnecessary to dilate upon this form, as it has already been described in a former paper, and its distinctive features pointed out in detail. Of course, more varieties than those given above might be made; but, for all practical purposes, they are sufficient, and will aid in avoiding a confusion in the consideration of the subject by means not only of making less varieties, but of not using obscure or puzzling terms in an endeavor to increase the number of subvarieties.

The crust, in the crustaceous syphilide, is always well formed and rather thick. Its margins are rather sharply drawn and well defined. The crust is, furthermore roundish or ovalish in shape, corresponding to that of the primary syphilide from which it originated. Unlike rupia, there does not exist a surrounding ring of pus. On the contrary, the crust is closely adherent to the skin at its border. It is not as thick as the crust in rupia, and never consists of superimposed layers, as in that lesion. The color is more or less yellowish or a dirty-yellow color—never blackish or greenish, as so frequently seen in the rupial syphilide. In fact, it does not give the impression of being as dirty. The pus underlying the crust is not so abundant and is rather thick and creamy, both in consistence and in appearance. There also exists a rather fair abundance of good granulations which bleed pretty easily. If a crust be forcibly removed there will be rather free bleeding, the edges will lose a small zone of epidermis—rather narrow, it is true—and on the subsidence of the bleeding there will

follow, quite soon, the formation of another crust, which, however, will be slightly larger than that which was forcibly removed. It is not an unusual occurrence to observe this tearing off of crusts through the negligence or carelessness of patients. They will run against a table, slide on the edge of a chair, scrape the arm against the edge of a door, fence, or similar object, and thus tear off a crust. A momentary pain is felt, some bleeding occurs, and the incident passes from the mind of the subject without attracting any further attention. One of the conditions connected with this syphilide is common to other forms of syphilitic lesions. It is the peculiar penetrating, nauseating and, to some, sickening odor which is invariably present. It is impossible to describe. It must be experienced, and the impression will be lasting and such that it will be recognized upon any future occasion. It is sufficiently characteristic to merit the name of syphilitic ulcerative smell. It can be best appreciated in the ward for syphilitics in a general hospital, more especially in winter, when quarters are hot and there is little ventilation and neglected cases crowd the wards seeking, principally, food and shelter and making their unfortunate physical condition merely serve as a means to gain admission to an eleemosynary institution. For it is almost exclusively in cities, and large ones, that this class of cases are seen, although some are occasionally seen in private practice in small towns, and rarely or never in the country. The lower strata of society are the ones which furnish the examples of this phase of the trouble, and they all naturally gravitate where misery, squalor, filth and disease are most abundant.

In the disseminated crustaceous syphilide the lesions vary in size from a silver dime to a silver quarter-dollar, and are very discrete in their distribution. In fact, they are separated from one another by quite an extent of normal integument. A good example of this eruption is shown in Figure 1. The characteristic condition to which attention has been called may be quite distinctly observed in this example. It may also be clearly observed that, whilst one of the lesions is very distinctly round, the others are more irregular in their contour. It is also a matter of some interest to note the fact that the crust, in each instance, has the appearance of having been introduced under the integument for a very slight distance. This is caused by the strong adherence of the crust to its base and the effort on the part of the skin to grow centripetally. A further peculiarity which was noted in this particular case, and well shown in the picture, was the fact that all the crusts occurred on the outer aspect of the limbs and trunk. The crusts are of a moderate degree of thickness and brownish in color, some portions being quite light, differing essentially from rupia in this particular. This is a rather common form of the crustaceous syphilide, and there should certainly exist no difficulty in easily recognizing it. It is usually more or less symmetrical in its distribution, corresponding limbs or parts of limbs and analogous parts of the trunk being simultaneously invaded. When occurring upon the back, as it frequently does, the lesions are pretty equally distributed at about corresponding distances from the median line. So that, taken altogether, this form of the crustaceous syphilide may be looked upon as being symmetrical in its distribution, and the separate lesions as closely resembling one another in size and conformation. So far as subjective symptoms are concerned, they will be mentioned

later on, as these are pretty nearly the same in the different varieties of the crustaceous syphilide.

The small, aggregated crustaceous syphilide is one which differs essen-



FIG. 1. Disseminated Crustaceous Syphilide.

tially from the other in a number of features. In the first place, the crusts are all quite small, this being due to the fact that they arise from small, flattened pustules which have a tendency to ulcerate superficially and

burst. As there is no spreading of the process, they naturally remain limited; and the crusts do not become large, seldom exceeding the size of the finger-nail, and more often being that of the nail of the little finger. A good example of this form is shown in Figure 2. It is true that but few



FIG. 2. Small Aggregated Crustaceous Syphilide.

crusts are shown in the picture, but this is due to the fact that the patient was ordered to wash the lesions, soften the crusts and remove as many as possible, in order to show with greater clearness the bases upon which they were implanted. Their tenacity is well exemplified in a number of the

lesions which show portions of crusts still adhering, and a number of small ones which have not been separated at all. In the second place, the lesions form a distinct patch; they are not distinctly discrete in their distribution, although far from confluent. They rarely, if ever, do run into each other to form large lesions, but leave very small unaffected portions of integument separating the one from the other. In other words, each one is a distinct lesion, possessing its own individual features, which, however, are shared in by every other one in the patch. In the case which is shown the patch is symmetrical, but this is not necessarily the case in every one. A patch may be located on one side or the other, various circumstances of a more or less factitious nature contributing to this, such as friction, irritating substances like chemicals, foreign bodies, clothing, etc., or scratching brought on by various causes. This is one of the forms apt to be mistaken for a dermatitis due to any one of the causes enumerated or to

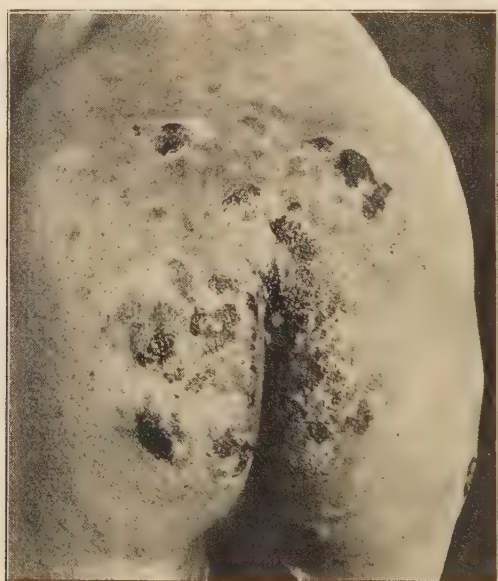


FIG. 3. Large Aggregated Crustaceous Syphilide.

parasites; and, for this reason, care should always be taken to look for concomitant symptoms confirmatory of the syphilis, not forgetting the history of the case.

The large, aggregated crustaceous syphilide is marked in its appearance, and a form which should not be difficult to recognize. It bears certain marks about it which will awaken suspicion even in a layman's mind. To begin with, the crusts are well marked, as large or larger than the thumb-nail, situated close to one another, and, very often, giving the appearance as though a lesion had developed centrifugally. A good representation of this eruption appears in Figure 3. The point to which reference has just been made is well illustrated in the outer and upper left hand lesion on the left buttock. There are others also in which the crusts are somewhat thicker at or about the center, and not quite so much at the

periphery. As may be observed higher up, on the back, the crusts are not quite so thick. This is easily explained by the fact that the pressure exercised by the sitting posture causes a corresponding thickness in the crusts. It is also more than probable that the pressure on the buttocks contributes in no small degree to the appearance of the crusts as well as to their becoming aggregated. The lesion on the right thigh, just below the natal fold, shown in the figure, was, doubtless, due to the pressure of the front edge of the seat of a hard chair. Some other superficial lesions are to be noted; and they, in time, would have shared in the nature of the others, had they been subjected to the same proximate exciting causes. This variety of the crustaceous syphilide is very apt to manifest itself in those who are careless in the care of their persons; much more so than in those who are cleanly. And whenever such a case is seen, it may be pretty safely concluded that the individual so affected was not only not cleanly in his habits, but careless in every other respect: careless in personal as well as moral and social habits; addicted to drinking, shiftless, and engaged in indiscriminate venery.

So far as the subjective symptoms of the crustaceous syphilide are concerned, it may be stated, in general terms, that there are none deserving of special mention. No pain whatever is experienced, and none elicited even when pressure of a moderate degree is exerted on a lesion. Of course, when a crust is forcibly removed designedly or by accident, there is a short, sharp pain which subsides in a few moments. There may be subjective sensations present in any given case, but they are dependent upon the general syphilitic process and not upon the eruption. So that it may be stated that the crustaceous syphilide has no subjective symptoms beyond those produced by accidental causes, as already mentioned above. This is a very useful point to remember, as the subjects of this eruption are inclined to malingering, and apt to complain of many symptoms which do not exist, in order to excite sympathy.

It may be laid down as a pretty nearly fixed rule that no other syphilitic eruption is to be found upon the integument when there is present any one of the forms of the crustaceous syphilide which has just been described. It is not rare, however, to note instances in which a few papules or pustules will show themselves at some point distant from the crusts. However, these make their appearance suddenly and perhaps remain stationary for a variable length of time and disappear as suddenly as they appeared. This concomitant eruption has no particular significance except as a sign that the syphilitic process, whilst it has been in an apparently dormant state, was lying quiet and was merely gathering new forces to manifest itself by more marked and deeper involvements than it previously exhibited. As has already been stated above, the crustaceous syphilide is never one of the early manifestations of syphilis, but is rather evidence of a late effort on the part of the process to manifest itself, and is usually an indication of the fact that treatment has either not been active enough or not prolonged for a sufficiently long period of time. This, again, may be due to either one or another cause. The patient may think that he has been under treatment for a time which he deems long enough and be led to neglect any further attention. Or his medical attendant may judge that he has been sufficiently medicated to justify his discharge

and a total suspension of all treatment. The patient thrives apparently, for a time, in his fancied security until an explosion occurs upon the cutaneous surface, relying upon the idea that the pustular outbreak which is present will disappear spontaneously and successfully. Relying upon this idea he suddenly awakens to the fact that his trouble has completely changed in its appearance. It is then that alarm is felt and assistance sought to relieve the peculiar trouble whose true cause is, unfortunately, not appreciated to that extent which it certainly deserves.

By keeping in mind the characteristics of the lesions which present themselves a certain adequate idea may be formed of the age of the trouble, even though the history be inexact and unsatisfactory. Even some conception of the treatment which has been pursued may be arrived at, although the account given is both inadequate, incomplete, or obscure. It should never be forgotten that the accompanying eruptions play but a small or almost insignificant part in the determination of the chronology, and the supposition that these lesions (papules, pustules) argue a recent attack should not be entertained. A careful examination of them will show that they do not present the characteristics observed in recent syphilides. Moreover, it should not be forgotten that papular, pustular, or tubercular syphilides will occur even in cases of so-called tertiary syphilis. These are known as relapsing syphilides, and they generally possess one peculiarity which can be easily verified upon examination. They are indurated, and a single one might lead to an error, more especially if its secretion was scanty in quantity. It might possibly be mistaken for a chancre and the case looked upon as one of reinfection. This error has occurred so frequently that it has served to throw doubt upon a number of cases which have been claimed to be syphilitic reinfections. Cases of simple ulcers with a rather thick crust and a doubtful history have been mistaken for the crustaceous syphilide. In these the patient supposes that because he has had a "sore" upon his penis he had syphilis; or some ignorant or unscrupulous medical practitioner has told him so. A two-weeks' course of treatment has cured (?) his disease, and makes the diagnosis unquestioned in his mind. Again, a gummy ulceration will be followed by a crust; and whilst the patient can give a clear history of lues, the physician may fail to recognize the true nature of the lesion with which he is dealing, and meet with more or less disappointment in its treatment on this account.

The treatment of the crustaceous syphilide is one which should be pre-eminently active to prevent the possibility of destructive complications, as these are very likely to declare themselves at any moment. To begin with, the patient should be placed under the best hygienic conditions, have good food, and be denied alcoholic stimulants. Then the internal treatment should be such a one as is adapted to the conditions which are present. A good working plan to follow would be one about as follows: Give the patient mercurio in doses of twenty drops in water, after meals, and gradually increase to thirty drops, if this dose can be tolerated. If not, give the dose which can be borne without untoward symptoms; and continue the entire course of this remedy for two weeks. Then give iodide of potassium in the following manner, as shown by the following formula:

℞ Kali iodidi..... ʒ i
 Aquæ destillat,
 Essence pepsini.....aa ʒ i
 M. Sig.—One teaspoonful in water or milk after each meal.

This should be gradually increased in strength until the patient takes a drachm of the iodide at a dose. The course of the iodide should last two weeks. After this a rest of a week may be taken and the former administered, the two being alternated until an impression of a marked character has been produced. After this a rather large period of rest is advisable and iodide of potassium in scruple doses, thrice daily, given intermittently until no fear exists of a relapse.

Locally, the treatment must at first be directed to the separation of the crusts. For this purpose mercurial ointment may be used or an oily application made as follows:

℞ Hydrarg. oleat., five per cent..... ʒ ij
 Ol. amygdal. dulc..... ʒ iv
 M. Sig.—Use locally twice a day.

A much more rapid method is that by employing bichloride poultices, 1 to 1000. An aqueous solution is taken in which gauze is soaked and placed on the lesions, rubber tissue being applied over it. The crusts having been separated, the base of each one is washed twice daily with water and sapodermin and nosophen powder applied. This will secure quite a rapid result. The sapodermin being a soap containing albuminate of mercury is in itself curative in its action. However, should an ointment be preferred, the following will be found a rapid promoter of healing, more especially if applied after a preliminary cleansing with sapodermin:

℞ Hydrarg. oleat., ten per cent.
 Ung. hydrarg. cinerei.....aa ʒ i
 M. Sig.—Apply once daily.

The prognosis in these cases is generally a good one, as they heal promptly under proper treatment and care. The proper management is always of prime importance and should never be neglected.

It would seem that investigators concerning the properties of the X-ray have much to discover, for, from recent discoveries, its utilitarian field is destined to be broad and beneficial. Experiments by M. M. Maldeney and Thouvenin, brought before the Academie des Sciences, of Paris, France, prove that the Roentgen rays can promote the germination of seeds. In the case the convolvulus arvensis, the seeds, when exposed to the rays for one-half an hour daily, germinated on the third day. When screened from the rays, they only germinated on the sixth day. Curiosity is here aroused as to the possibilities of these rays in hastening the germinating properties of other varieties of seeds, and its influence on plants as hastening development.

MAN'S INHERITED MARTYRDOM—A FITFUL STUDY OF DEGENERATION.

By WARREN B. OUTTEN, M. D., of Saint Louis.

[CONTINUED FROM THE JANUARY ISSUE.]

CHAPTER VIII.

THEO CELSUS.—Vice may, perhaps, enhance our pleasure; curses with woe our progeny. 'Tis a racking thought that man through vice debases not only his own destiny, but for ages exercises deleterious effects and practically makes degenerates through a long period of posterity. A single vice may become, in time, a multiphased murder. Nay, he that would be good and virtuous, should study heredity. A murderer is merciful in comparison with vice; for a single life satisfies the murderer, while scores do not satisfy vice. A drunkard or a libertine begets a diseased and degenerate progeny. Heaven give virtue liberty; but let vice be celled.

TES AURE.—Aye, how strange a thing this fear is in a besetted mind! Nay, the very idea of being in dread of a needle! Such fear, indeed, were folly, if it were not infirmity. Fear in such minds seems stronger than in all else. Here, it is more than tyrant, for it hath no solace in understanding. For these men have not been hurt, yet they fear. For it truly seems that this fear is but engendered by a hurt ancestor. Thus it is that fear becomes to them as much of an heritage as their appetite. Here, fear is, indeed, a torment—yea, a tax that conscience pays to an inherited infirmity. For it seems nought but impulse void of common sense. Anon, this fear is not cowardice, for it comes without reflection. Thus it is that fear becomes a weapon that paralyzes the will. Nay, here fear becomes an ill-timed medley. True, indeed, for varied capricious wonder, what does not an enfeebled and helpless brain offer? To me the brain is the focus of earth's and man's doings and experience, both in health and disease.

PARA BLAR.—I pray thee, sirs, think me not impatient, but our progress lags. In impulse's nervous exhaustion—it were better called impulsive besetments—I learn that where the will is beset by indecision—that is, where the will wants settled purpose, but has a lack of determination, and is wavering and irresolute—we have what constitutes one form of impulse's besetment. Another form is where the will is beset and controlled by fear; while the last form is that where a mind is filled with irresistible tendencies, and is incapable of successfully resisting them by exercise of the will. Thus, we may find an irresistible tendency to steal, to drink, to kill another or others, or kill self. This seems to be their involuntary, but very nature.

BLOM BLONG.—“Nature,” say you! It would seem that this infirm nature is past all teaching, and will not be educated. Nay, thou canst not expel its nature. Aye, to me it truly seems that here nature and wisdom are at outs. Even the ancients used to say: “You may dig up nature with a fork, yet it will ever return.”

THEODORUS.—Truly, interest should center here. For these besetments of indecision of the degenerate are but spoken of by Regis “as the

insanity of doubt." Now, then, the mind thus affected with the besetment of indecision has first fixed ideas which it cannot banish. They come in the muse of query, under which the mind hesitates, irresolute. Yet doth it ever soulfully strive to solve its doubt. Aye, a doubt withers that degenerate's soul when beset by indecision, for doubt never seems the key to his knowledge; surely, doubts constantly are his but to err. The beginning and course of his soul's doubt appear to end in his perpetual misery, for his doubt never reaches decision. If doubt can make a well man weary, what can it not do for a degenerate, whose mind is beset by indecision? It surely courts nought but madness. Doubt in the mind is not only the shadow, but the substance of the mind's indecision. Time, torment, and torture mark the mind's course when beset by indecision, for they are but the prevailing and ruling ideas of the condition.

Thus the degenerate mental philosopher has a besetment of indecision. He is unceasingly tormented by notional and theoried questions. He ponders by day and by night in ceaseless and useless mazy worry concerning Deity, and thus gets pained mental stress. He racks his being about heaven: whether it exists or not. What is heaven? Where is heaven? He agonizes his mind by a study of hell; and in endless vagary he studies the soul. Nay, no secret nor obscure problem in nature but courts his worry. His boundless mental officiousness unceasingly begets agony. "Why" and "wherefore" to him becomes but his mind's punishing demons. His is a helpless, weakened brain, and may turn agnostic. Yea, a soul's palsied agnosticism! Question, irresistible! Continuous, agonizing question, which plunges them into the direst depths of torture. Here is the worry of the "why." The agony of the "wherefore" is making in such impotent, nugatory, degenerate skeptics.

THEO CELSUS.—If some one had said that degenerate philosophers have said more mad things than have fools, I should feel inclined to agree with him. Perchance, 'tis because they think and talk o'er a wide range of theme. The deepest philosophy but leads to helplessness. The distinction between a deeply idead philosopher and the helpless degenerate agnostic is certainly close. The hair-spun mind may doubtless exist with health, but surely it touches disease.

HEINE LANIUS.—Aye, thy degenerate philosopher, beset with indecision, is mystery eventuating in madness. For out of his "yes" and "no" comes his mind's trouble. True it is that too much doubt may blight the mind; and Story tells of doubting mind that boasts of many martyrs.

The greatest of all fools is he that would know too much. While many hold a world in mind, they yet have nought to rule it. In these degenerates need and motive make infirmity. Aye, true, they talk like wise men, but they act worse than fools. They are eternal students of life, but they know not how to live. Healthy men live but to learn, while these live but to doubt. Aye, it is said they spend all their early lives in letting down empty vessels into empty wells, and fritter away their old ages in trying to draw them up again. They are the fated frailties of a degenerate soul acting under stress of heredity.

THEO CELSUS.—And now, forsooth, here strangeness wells! Yea, behold a modern worrier, an active doubter, a peccant degenerate called the realist. He, the degenerate realist, is beset with irresistible and tena-

cious desires to investigate and elaborate the lowest and coarsest details of objects. He studies all that lives in the realm of naked vegetative function. His doubt, his besetment of indecision, is mainly in the direction of the bestial and carnal. The differences of sexes, the beard, the naked bareness of things; which should be considered and spoken of only in due and proper form. The realist is one of whom perversion is a part, for his mind at all times seems to revert to the realm of the perverted. At times he defiles even mud, for his half knowledge hides its virtues but to adorn its filthy faults and defects. He is a sort of mental tumble-bug, content amidst questionable or even base environment. Yea, indeed, it doth seem to me that the brain of a realist is a sort of mental unreliable tank, wherein good ideas are often poured, seldom to abide over night without coming forth naked and reeking with doubtful suggestion. The realist proclaims that an ounce of nude reality is worth a ton of well-clothed virtue. He thinks that the world revels in nudity, as he himself does. Truly, he resembles the man who, upon seeing the skeleton of a donkey, seriously observed: "Ah, 'tis true, we are fearfully and wonderfully made!" Yea, he is, indeed, more asinine than angelic; more nakedly natural than noble!

HEINE LANIUS.—Welladay! Lo, and behold! the sun shines for the realist, and is not dimmed. The moon placidly views him along with the rest. The stars twinkle for him; for twinkle they must. The sea rolls and sobs for him, whether he cometh or not: and the daisies wait longingly for his feet, as they do for those of the sweetest and best. Yea, the old world rolls for him, for it would be a poor world if it did not roll. Nay, thou canst not change the world's nature, nor the nature of this fly-speck-man, for thus was he made, and is, therefore, not to be blamed.

THEODORUS.—Aye, life is the sum of qualities that make up a thing. What, as it is, that makes man what he is. The degenerate realist is made from inherited defects. His vulgarity arises from a natural obtundity of sensation in a special direction; an inherent tendency, which impels him to act in harmony with the vulgar. Vulgarity can only be vulgarity by being intrusive; robbed of its display, it hath not meaning nor effect. The realist is born without refinement; the common grossness of his nature estimates all things as upon this plane. Made, as he is made, he would disenchant the refined beauties of all things. In the wayside pool he sees but the mud beneath; nor can his realistic eye look deep enough to view beyond the glorious stars reflected deep from heaven's spangled firmament on high!

[TO BE CONTINUED.]

HISTORICAL SKETCH.

BOERHAAVE, 1668-1738.

By JAMES MOORES BALL, M. D., of St. Louis.

Nearly one hundred and fifty years have passed since the death of Hermann Boerhaave, one of the most illustrious physicians of ancient or modern times; a man whose fame as a medical teacher was equaled by no one in his day; a physician of such extensive reputation that a Chinese mandarin, addressing a letter to "Boerhaave, in Europe," received an answer; a man of such beauty of character that the populace loved and respected him; a giant in intellect, who has left an impress on the history of the medical profession.

Educated in logic, ethics, metaphysics, rhetoric, geography, mathematics, modern languages, Hebrew, Chaldee, philosophy and theology, Boerhaave was originally intended for the ministry, but by stress of circumstances became a teacher of mathematics, and was advised by the burgomaster of Leyden to join the study of physic and philosophy to theology. He followed anatomy with zeal, not only studying the works of Vesalius, Fallopius and Bartholin, and witnessing the demonstrations of Nuck, but often made human and comparative dissections. He applied himself assiduously to the study of the works of Hippocrates and Sydenham, and in 1693 received the degree of Doctor of Physic, from the University of Harderwick, and shortly thereafter began to practice. In 1701 he began his career as a medical lecturer, and delivered an inaugural discourse in which he set forth Hippocrates as a model to be followed by all students of medicine. Two years later the chair of medicine in the University of Groningen was offered to him, but Boerhaave preferred to remain in Leyden. Indeed, he had no occasion to leave the Athens of the Netherlands, for the curators of the university increased his salary and promised him the chief professorship in medicine when it should become vacant. It was about this time that he publicly presented the claims of mechanical reasoning in physic. His must be regarded as one of the chief names of the Iatro-mechanical School of Medicine. For forty years Boerhaave was one of the great lights of the Leyden medical school. After 1718 he taught the theory of medicine, the practice of medicine, botany, chemistry, and clinical medicine in separate courses—and this was only a small part of his labors. He found time to write numerous books, to attend to an enormous practice, and to learn almost everything that was known to science in his day. No wonder the Royal Society of London and the Academy of Paris requested that they might add his name to their lists. He seemed able to grasp everything in learning and to do everything better than any predecessor or contemporary; yet he was not great as a botanist, a chemist, a historian, or as an anatomist. With a wonderful memory and the energy of a dozen men, he set the world ringing with his fame. He acted as a balance-wheel, trimmed here and pruned there; attempted to reconcile the differences between the vitalists and the mechanical doctors; commended the study of the Father of Medicine to all physicians; issued with

Albinus an edition de luxe of Vesalius; wrote the *Institutions of Medicine*, which became the text-book of Europe; produced a volume of *Aphorisms*; compiled an *Index of Plants in the Botanic Garden of Leyden*; tried to deliver chemistry of some of its errors; wrote on venereal disease, on materia medica and remedies; and delivered a masterly oration on the life of Albinus. In 1731 there appeared his final work, *Elementa Chemicæ*, in which is first mentioned the substance since named urea, crystallized out "in saline globes of a particular kind that are perfectly distinct from every other salt, not fœtid, not alkaline, but very evanescent, the native salt of urine." In this work he states that compressed air prevents fermentation, and that borax is an antiseptic. The success of his books was due, not so much to new facts or theories as to their simplicity and clearness and to the eclectic character of his teaching. He read the writings of all writers of all ages, and analyzed, illustrated and commented upon their works. "He soon gave to the world his *Institutions of Medicine* and his *Aphorisms*, two of the most concise, and at the same time comprehensive, works that science had yet produced, and which, for variety of matter and extent of views, had been surpassed only by those of the illustrious Bacon."¹ If Boerhaave had begun by collecting and classifying facts and data, in place of beginning with conclusions, his writings would have been models of true reasoning, as they are unquestionably masterpieces of learning, order and clearness. The medical school in which he taught has lost its renown and now lives chiefly in an illustrious past. How thoroughly Boerhaave was wedded to the mechanical school may be judged by his idea of physiology. He says: "Let anatomy faithfully describe the parts and structure of the body; let the mechanician apply his particular science to the solids; let hydrostatics explain the laws of fluids in general, and hydraulics their actions, as they move through given canals; and lastly, let the chemist add to all these whatever his art, when fairly and carefully applied, has been able to discover; and then, if I am not mistaken, we shall have a complete account of medical physiology."

He was an eclectic. "At present," he says, "physic may be learned without adhering to any particular sect, by rejecting everything that is offered without demonstration, and by collecting and retaining only what has been offered and approved to be real truth, both by the ancients and moderns." Like other great men, Boerhaave sometimes contradicts himself. In speaking of the archæus of Van Helmont, he says: "One might as well confess his ignorance of the cause of any action, as attribute it to some imaginary and unknown being, of whose existence, nature, actions, and manner of operation, we have not the least knowledge or assurance." Yet in another place I find him saying that "the physician operates by his skill, not upon the disease, but upon life, which Van Helmont called the archæus."

One of his favorite therapeutic maxims was "*contraria contrariis curantur*"—contraries are removed by contraries. This he explains as follows: "Not by such means as are directly opposite or contrary to the present disease, but by such remedies as will afterwards manifest their effects contrary to the cause of the disease." Further he says: "Paracelsus

¹ Cabanis: *Sketch of the Revolutions of Medical Science*, p. 156, London, 1806.

and Van Helmont ridicule the maxim *contraria contrariis curantur*, and point to the fact that a frozen man would be killed, not cured, by exposure to the influence of the fire; cold, a similar, being the proper cure. But they do not reflect that in this case remedies which cure or relieve cold by renewing heat must produce an opposite effect to cooling. In the same way, when we want to cool fever, we do not give cold water, but such drinks as will produce cold as their ultimate, not their primary, action." Here Boerhaave admits the opposite effects produced by the same curative agent, owing to the difference between its primary and secondary action. This is the fifth time in the history of medicine that we find great men announcing the doctrine *contraria contrariis curantur*. The first was Hippocrates, who taught that if a man were too lean we must fatten him, and if too fat we must make him thinner. The second was Galen. He said that disease comes from excess of moisture, dryness, heat, or cold. Medicines are in their nature moist, dry, hot, or cold. We are to give hot remedies in cold diseases, etc. The third annunciator was Paracelsus, who claimed to possess an arcanum or specific opposed to the disease. The fourth time was when the chemists announced that disease comes from excess of an acid or an alkali; and is to be treated by the contrary. Finally Boerhaave says: "Give a medicine whose ultimate action is curative of the cause of the disease, whatever its immediate action may be. If a hot drink produce perspiration in fever, then give a hot drink, for that will cool the body, which is what we want to do. If the primary action of opium is constipating, and of rhubarb laxative, and the secondary the reverse, according to the principle of reaction, then opium may be the remedy in constipation, and rhubarb in diarrhœa." He also recognized specifics. This method "removes the cause of the disease by the administration of such things as are known to be efficacious only from experiment."

Boerhaave himself has practically been forgotten, for he founded no system and made no great discovery; he left, however, many adherents, and some of these, his pupils, made much stir in the medical world. Among them were Cullen, Gaub, Haller, de Haën, and Van Swieten. **Hieronymus David Gaub (1705-1780)** was a professor in Leyden and attained great celebrity as a teacher. He is remembered as having been the author of the first complete work on the exclusive subject of general pathology. He belonged to the Dynamic School. He held that sickness is as natural as life and death, and had great confidence in the reparative power of nature. He maintained the existence of a "vital force," which has its seat in the solids. He spoke of tension and feebleness, omitting laxity, as among the defects of "fibre," and these defects may run into irritability or decline into torpor. Cullen deserves more space than can be given here, and will be mentioned later; the same is true of Haller. De Haën and Van Swieten belong to the Old Vienna School.



NEW YORK LETTER.

At a recent meeting of the New York County Medical Society, held December 26th, Dr. Ramon Guiteras read a very interesting paper entitled "Some Observations on Stricture of the Urethra." In his paper he speaks of external urethrotomy operation as follows: "External urethrotomy can be performed in a number of ways, but it should be made upon the Gouley tunnelled catheter, if possible. This instrument, when of small size, can usually be passed into the bladder without difficulty, and then, the patient being in the lithotomy position, it is easy to cut down through the perineum into the groove on its convexity and along it into the bladder, after which the opening can be enlarged and a perineal tube inserted. If the stricture is too narrow to allow the guide to enter, but a filiform bougie can be passed, the Gouley catheter can be forced over the filiform into the bladder. The escape of urine through the catheter shows that the instrument has passed successfully, when it can be cut down upon as before mentioned.

"The combination of internal and external urethrotomy in both deep and anterior strictures in the same individual is interesting. Most surgeons first pass a guide through the urethra, and then cut down on the convexity through the perineum, thus opening the deep stricture first; after which they withdraw the Gouley guide, allowing a grooved director to remain in the perineal wound with its point-end in the bladder. The Otis urethrotome is then pushed down until its point rests in the groove of the director, and an internal urethrotomy is performed. In this way I have seen a number of corners left in the perineum, around which one has to pass a sound in order to enter the bladder. In other words, there seems to be an unevenness in the deep urethra after the operation.

"It appears to me, then, that it is better in these cases to first pass a filiform or the guide of a Maisoneuve through the stricture and then perform an internal urethrotomy by means of this instrument. This would open the strictured portion to the size of an 18 French, after which a good-sized perineal guide can be passed through the urethra and an external urethrotomy performed upon it. In this case we are pretty sure of having an even urethra from the meatus to the bladder, without any steps in the perineal portion. This good-sized guide can be passed over the same filiform as the Maisoneuve, if desired. If, after this, it is thought best to make the anterior urethra still larger, an Otis urethrotome can be passed down over the filiform in the same manner and the anterior stricture can be still further enlarged. In this way one can be quite sure that the different portions of the urethra are evenly connected.

"If no guide or filiform can be passed through a stricture—that is to say, if the stricture is impermeable—and yet the patient is able to pass urine, it is advisable to put him to bed for two or three days, to give him hot sitz-baths twice daily and a diluent, and at the end of twenty-four hours to try to pass a filiform or a very small gum elastic bougie through the urethra. In almost every case this can be accomplished, and then an operation can be performed as described. I have seen cases where the

urethra was so tight that not even the smallest eye-probe could be introduced through the anterior urethra, and yet, after twenty-four hours of this treatment, an instrument could be passed.

"If, however, the patient cannot pass any urine, and retention be present, with an impassable stricture, the question of operative procedure is an interesting one. The probabilities are, in a case of this nature, that the attack of retention is an acute one, and that a hypodermic injection of morphine in connection with a hot sitz-bath will allow the patient either to pass some water or will relieve the condition sufficiently to allow an instrument to be passed; and if not, that a couple of hours' rest, with poultices over the perineum and pubes, will enable this to take place.

"In case, however, that at the expiration of this time the patient cannot urinate and the smallest catheter cannot be passed through the urethra, the question between an immediate operation for the relieving of the retention or a suprapubic puncture, and then, after the congestion has been removed, trying to relieve the bladder, is one of great interest. I am inclined to favor suprapubic puncture, with rest and hot applications, as I think by this means the congestion can sometimes be sufficiently reduced to allow the patient to urinate or else to be catheterized. Sir Henry Thompson, in a large genito-urinary experience—probably the largest that any surgeon has ever had—states that he has never had but six cases where he could not pass an instrument into the bladder, and that four of these were due to stricture.

"If we are successful in passing a small instrument into the bladder, we can perform continuous dilatation, or else operate immediately by the method already outlined. If, on the other hand, an impermeable stricture with retention is present, and it is not considered advisable to wait and postpone the operation, trying palliative measures in the interim, it will be necessary to operate without a guide. In that case I can recommend an instrument of my own, called the grooved perineal canula, which, when inserted through the perineum, can be made to enter the prostatic urethra; and an incision along its groove will open this part of the canal, when the instrument can be pushed into the bladder and its presence confirmed by the escape of urine. It is well to perform such an operation in connection with a Gouley grooved tunnelled sound passed into the urethra, as otherwise it would simply be an improvement on the Cock's operation. It would be well, therefore, to pass a tunnelled guide down the anterior urethra as far as the stricture, open the urethra in the perineum on the guide, pass a traction suture through the urethra on either side, then turn the guide, allowing its beak to come out through the opening, thus holding it open from three sides, and afterwards try to dissect down through the stricture. If not successful, pass the grooved perineal canula through the perineum into the prostatic urethra where it joins the membranous, open the canal by running a knife along the groove on its upper surface, then pass a straight grooved director along it into the bladder; then dissect down from the beginning of the strictured portion between the sutures to the grooved director in the perineum, where we will have a clear path from the external to the internal meatus. After the operation perineal drainage should be kept up by a tube for a week, and sounds passed every two days."

In the discussion that followed, Dr. Eugene Fuller referred to the pathology of strictures, speaking more particularly of the condition of fibrosis and that of round-celled infiltration. In the first there was no question but what good would follow the stretching by dilatation; in the latter condition he thought best to leave it alone, but to give the patient cod-liver oil, etc., and get him in good condition, when, at the end of a year, nothing will be found.

In regard to the impassability of stricture, Dr. Fuller referred to Buxton Brown's belief that no stricture is impassable. Dr. Brown says one should not try to get through the stricture before a class, but in a quiet place. He now had a case in the hospital of a man who said he had a difficult urethra to get through. Dr. Fuller tried to get in and failed at first; he found it riddled with false passages. The man was asked to do the operation, which he did, using hay-wire; *i. e.*, wire used to bind hay. He will be operated upon, the hay-wire being used as a guide. False passages are often mistaken for strictures; in these a large sound will pass where repeated efforts to pass a small one has failed.

Dr. Charles H. Chetwood recalled the definition of a true stricture, which was a change in the urethra produced by inflammatory or cicatricial conditions. Spasm of the urethra should not be called a true stricture. He advised that treatment of stricture should be by the most conservative means, which, he believed, to be dilatation. Dr. E. L. Keyes said, years ago, that all strictures that could be dilated should be dilated. The sounds he preferred were those of a double taper and which were smooth, these causing less pain. In treating deep strictures, usually found at the bulbo-membranous junction, he advised external urethrotomy on account of its meeting the requirements of asepsis and drainage; for good drainage we must have a perineal opening.

Dr. Ferd. C. Valentine believed Oberlander's dilator to be the best of dilating instruments when the stricture was beneath 20 French.

Dr. John P. McGowan, of the New York Naval Reserves, the gallant surgeon of the *Yankee*, was recently the recipient of a beautiful loving cup from his numerous medical friends. Many speeches were made during the evening (Thanksgiving eve), but especially the scholarly address of Dr. John P. Aspel was in great harmony with the object, aim and purpose of the gathering. The night will long be remembered in medical circles, but especially in the heart of the worthy recipient of the cup.

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MEDICAL NOTES.

Erysipelas.—Of all the numerous applications which I have tried, however, I have found nothing which has given the universal satisfaction afforded by the following prescription, or something equivalent to it:

Resorcin (or naphthaline).....	5
Ichthyol.....	5
Mercurial ointment	40
Lanoline.....	50

The proportions of these ingredients may be varied, and I often increase the amount of ichthyol, especially when the skin to which it is to be applied is not too tender. The affected parts are anointed with this, and then covered with oiled silk or some impervious material, simply to prevent its absorption by the dressings; the parts are then enveloped in a light dressing and bandaged. Whenever I have to deal with local evidences of septic infection, I use an ointment essentially the same as this, and have learned to count on it with more reliance than anything that I have ever resorted to. As the disease becomes mitigated the ointment can, if desirable, be reduced with simple lard, and may be discontinued when local signs have disappeared.

DR. ROSWELL PARK.

Podophyllin.—The chologogue properties of podophyllin has been estimated to be greater than of any known substance. The active principles contained in this drug are two substances: crystalline podophyllotoxin and podophylloresin; both are excellent laxatives in small doses without secondary constipation. Only the podophylloresin exerts a true chologogue effect.—DRS. MACKENZIA AND DIXON, *Edin. Med. Journal*, November, 1898.

An Adjuvant to Quinin.—It has been a matter of common experience, especially in the treatment of malarial fevers in the tropics, that the action of quinin appears to be promoted by the simultaneous administration of various spices. The remarkable farrago of compounds in Warburg's tincture, the original formula of which is said to have contained seventy-six ingredients, powdered snake skins among the rest, doubtless owes much of its efficiency in chronic malarial disorders to its predominant proportion of spices. I have been accustomed, therefore, for many years to prescribe powdered ginger along with quinin, in equal quantities, and I have felt convinced that I can get along with smaller doses of the quinin itself by adding the ginger, in the treatment of our ordinary intermittents. In a number of cases I add pulverized capsicum, one grain to four of quinin. I have known ginger alone, administered in free doses in hot milk, to break up chronic ague of the quartan type, when quinin had conspicuously failed.—DR. WILLIAM H. THOMSON, *Medical News*, December 17, 1898.

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is a hypnotic of tried and approved value. It possesses undoubted advantages over other hypnotics in Prompt Effect, Reliable Action, Freedom from Evil After-effects and General Superior Therapeutic Value, as confirmed by contributions to current literature by H. C. Wood, W. Hale White, John V. Shoemaker, Chas. L. Dana, Chas. H. Steele, John Aulde, S. V. Clevenger, and many other authorities.

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SURGICAL SUGGESTIONS.

Treatment of Vesical. Fistulæ.—Each case must be treated on its own merits, but a few general rules can be laid down:

(1) In the first place, any cause of urethral obstruction should be removed and a direct passage for urine obtained, either per urethram by a catheter tied into the canal, or by drainage of the bladder through the perineum. By this means the urine will, in many cases, be prevented from leaking into the fistula, which then may close, or at least be put into a condition capable of cure by subsequent erosion.

(2) Any foreign body in or near the bladder, or any other cause of inflammation, should be removed, if possible.

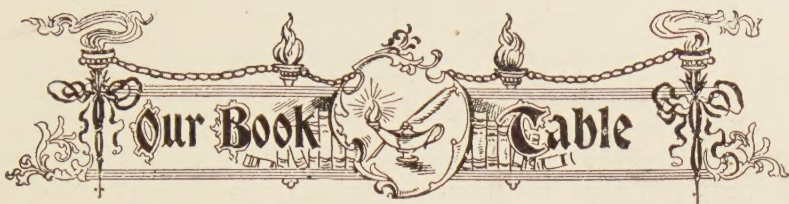
(3) Abscesses and suppurating cysts in the pelvic cellular tissue must be treated on general principles.

(4) All callous fistulous tracts must be laid open and scraped, excised, or cauterized.

DR. HENRY MORRIS.

Preparation of the Patient's Skin for Operation.—The patient's skin in the vicinity of the wound, or in a region in which the wound is to be made, requires scrupulous care and much attention to secure its disinfection. A wide area should be thoroughly scrubbed and shaved, and then, if time allows, should be macerated for from twelve to twenty-four hours under a compress wet with boro-salicylic solution. About two hours before the expected operation this compress should be removed and the sodden area should again be thoroughly scrubbed, after which a compress wet with sublimate solution, 1:2000, should be applied and kept on until after the patient has been anæsthetized and placed on the operating table; here a final scrubbing is done, followed by vigorous sponging of the region with ether, and, lastly, a free douching with the sublimate solution. The surface is then ready for incision. In cases of emergency the preliminary boro-salicylic soaking must be omitted, and the period of application of the bichloride compress reduced, as the exigencies of the case may require. After the original disinfection of the skin has been done, an additional wide area of the skin surface should be covered with sterilized towels to lessen the possibility of accidental contact of hands, instruments or dressings. In many cases the covering of the entire body by one or more sterilized sheets is desirable.—DR. LEWIS STEPHEN PILCHER, "The Treatment of Wounds: Its Principles and Practice, General and Special," page 129.

Immediate Massage of Fractures.—The massage should be extremely cautious and gentle, and include the entire group of muscles, omitting none. The adjoining articulation must not be worked too violently, either by the masseur or the subject himself. Dagron reports that fractures of the two bones of the forearm in children are cured in twenty days with immobilization and massage (Lucas-Championnière), and of the lower end of the humerus in twenty-six days. By "cure" he means absolute restoration to integrity, without either functional or plastic troubles, a solid callus and muscles ready to work the consolidated skeleton normally. Fifteen to twenty minutes are required for the mobilization, and the maneuvers should never cause pain. In fractures involving the periosteum, in rachitic children, in syphilitic adults, the mobilization and massage must be applied at a distance, not directly to the injured spot. In fractures of the olecranon, with a space of two centimeters, this will increase to three after mobilization, and gradually close up to one centimeter. This is the best result attainable.—*Presse Méd.*, December 3d; *Journal of American Med. Assoc.*



The American Year-Book of Medicine and Surgery. By GEORGE M. GOULD, M. D. Illustrated. Royal octavo, pp. 1077. Philadelphia: W. B. Saunders, 925 Walnut street. 1898. Price, in cloth, \$6.50; in sheep, \$7.50.

This excellent epitome of recent progress should be in the hands of every physician. It represents in a condensed form the latest and best work of our profession. The increasing demand for the Year-Book since its inception shows an appreciation on the part of the profession which must be gratifying to both author and publisher. Dr. Gould has been ably assisted in the present work by twenty-seven of the leading physicians of this country. In the present volume 224 pages are given to General Medicine; 223 to General Surgery; 82 to Obstetrics; 84 to Gynæcology; 42 to Pediatrics; 62 to Pathology; 53 to Nervous and Mental Diseases; 14 to Orthopedic Surgery; 57 to Ophthalmology; 32 to Otology; 22 to Diseases of the Nose and Larynx; 31 to Cutaneous Diseases and Syphilis; 37 to Materia Medica, etc.; 13 to Anatomy; 17 to Physiology; 11 to Legal Medicine; 10 to Public Hygiene, and 10 to Chemistry. The Index occupies 54 pages.

A Treatise on Fractures and Dislocations. For Practitioners and Students. By LEWIS A. STIMSON, B. A., M. D., Professor of Surgery in Cornell University Medical College, New York. In one octavo volume of 823 pages, with 321 engravings and 20 full-page plates. Cloth, \$5.00 *net*. Leather, \$6.00 *net*. *Just ready*. Lea Brothers & Co., Philadelphia and New York.

Dr. Stimson has had a wide experience in traumatic surgery through eleven years of service in charge of the House of Relief. Here he has seen examples of the rarer forms of injury and some not heretofore described. This increased experience led him to recast his former book. Although in a sense a second edition of the author's two-volume work, now out of print, this book has been so materially altered and so largely rewritten that it is practically new. The eminent author has condensed his most comprehensive experience into a form adapted particularly to the needs of the student and practitioner, but the work will none the less be a standard reference book for the surgeon and the student of special subjects, who will find the abundant bibliography of indispensable value. It is believed that in the elimination of historical matters and in the substitution of settled opinions for the previous discussions of divergent views, the directness and applicability of the knowledge presented will increase the favor with which the original work was received. The illustrations have been subjected to equally thorough revision and embrace many new pictures, notably a rich and instructive series of X-ray full-page plates.

NEW REMEDIES.

Stypticin in Uterine Hemorrhages.—Dr. Bakofen reports (*Muench. med. Woch.*, vol. xlv., p. 419) having used stypticin in forty-five cases of uterine hemorrhage, comprising five cases of vaginal metrorrhagia, nine cases of menorrhagia, twelve of metrorrhagia, and four of hemorrhage following the removal of the adnexa, two of atypical hemorrhage with acute gonorrhœal infection of the uterine mucous membrane, eight of endometritis hemorrhagica, two of climacteric hemorrhages, one of bleeding during pregnancy, and one of hemorrhage in myoma. Stypticin was ineffective in ten of these cases, and of doubtful action in four. In all the rest it was effective in checking the hemorrhage. No disagreeable by-effects were observed. The remedy was generally given in the form of pills or tablets, doses of 0.05 gramme (three-fourths grain) being administered four or five times daily. Usually from eight to fifteen doses sufficed.—F., *American Medico-Surgical Bulletin*.

Combining Eucaïn with Cocain.—We read in *Journal de méd. de Paris* (September 12th): By combining eucaïn with cocain we secure a valuable anæsthetic with the advantages of both and none of the inconveniences of either. Eucaïn, the methyl ether of methyl-benzo-tetramethyl- γ -oxypiperidin-carbonic acid, is a white crystal substance soluble in water, alcohol, ether, chloroform and benzine; it melts at 104 deg. Cent.; is not decomposed by boiling, like cocain. Its solutions are, consequently, not affected by sterilization. Its anæsthetic action is more durable than that of cocain, while it is not toxic. Its effect on the pulse is to retard it, while cocain accelerates it. A good formula for the combination is: Hydrochlorate of eucaïn, hydrochlorate of cocain, ace. 20 centigrammes; aqua dist., 20 grammes. For hypodermic injection, 1 c.c.—*Exchange*.

Iodoformogen.—E. Kromayer endorses this odorless preparation of iodoform as the best method of applying iodoform which we possess. It consists principally of albumin and iodoform; is three times lighter than the latter, and its odor under the dressings, even on extensive wounds, is not perceptible. It favors the production of granulations and a rapid epithelial epidermization, as he has established by experience with over a hundred patients.—*Annales de Derm.*

Euphthalmin.—Dr. Winselmann, according to the *New York Lancet*, considers euphthalmin a valuable mydriatic for diagnostic purposes. A five per cent. solution causes initial mydriasis in twenty minutes, maximum mydriasis in thirty-two minutes; a ten per cent. solution in fourteen and twenty-three minutes, respectively. Slight pupillary reaction to light remains till five to fourteen minutes later. Accommodation is not at all or very slightly impaired, reading not being hindered. The maximum mydriasis lasts three to three and one-half hours, and the pupil resumes its normal size in about seven hours. Euphthalmin causes no conjunctival or corneal irritation, no pain, and no rise in tension.